

VPDES PERMIT FACT SHEET

This document gives pertinent information concerning the reissuance of the VPDES Permit listed below. This permit is being processed as a MINOR, MUNICIPAL permit. The effluent limitations contained in this permit will maintain the Water Quality Standards of 9 VAC 25-260-00 et seq. The discharge results from the operation of a municipal sewage treatment works receiving domestic sewage. This permit action consists of permit reissuance for a term of five years with updated boilerplate special conditions, limited parameters and groundwater monitoring. SIC Code: 4952

1. **PERMIT NO.:** VA0026239

EXISTING PERMIT

EXPIRATION DATE: June 10, 2012

2. **FACILITY NAME AND LOCAL MAILING ADDRESS**

FACILITY PHYSICAL LOCATION (IF DIFFERENT)

Kenbridge Wastewater Treatment Plant
P. O. Box 478
Kenbridge, VA 23944

177 Maple Street
Kenbridge, VA

FACILITY CONTACT:

NAME: Jerry Smith

TITLE: Supervisor Water and Wastewater

PHONE: (434) 676-2465

E-MAIL:

ALTERNATE CONTACT:

NAME:

TITLE:

PHONE: ()

E-MAIL:

3. **OWNER CONTACT: (TO RECEIVE PERMIT)**

NAME: Mr. Donnie Neblett

TITLE: Town Manager

COMPANY NAME: (IF DIFFERENT)

ADDRESS: P. O. Box 478
Kenbridge, VA 23944

PHONE: (434) 676-2452

E-MAIL:

4. **PERMIT DRAFTED BY:** DEQ, Water Permits, Blue Ridge Regional Office

Permit Writer(s): Frank Bowman

Date(s): March 15, 2012

Reviewed By: Bob Tate

Date(s): March 22, 2012

5. **PERMIT CHARACTERIZATION:** (Check as many as appropriate)

☐ Issuance

☒ Municipal

☒ POTW

☒ Reissuance

SIC Code(s) 4952

☐ PVOTW

☐ Revoke & Reissue

☐ Private

☐ Owner Modification

☐ Industrial

☐ Federal

☐ Board Modification

SIC Code(s) _____

☐ State

☐ Change of Ownership/Name

☐ Publicly-Owned Industrial

Effective Date: _____

☐ Site-Specific WQ Criteria

☐ Interim Limits in Other Document (attach to fact sheet)

☐ Variance to WQ Standards

☐ Concept Engineering Report Being Approved with Permit

☐ Water Effects Ratio

☐ Possible Interstate Effect

6. **APPLICATION COMPLETE DATE:** December 8, 2011
7. **RECEIVING WATERS CLASSIFICATION:** River basin information.

Outfall No(s): 001

Receiving Stream:	Seay Creek	7-Day/10-Year Low Flow:	0 MGD
River Mile:	6.73	7-Day/10-Year High Flow:	0 MGD
Basin:	Chowan and Dismal Swamp	1-Day/10-Year Low Flow:	0 MGD
Subbasin:	Chowan River	1-Day/10-Year High Flow:	0 MGD
Section:	2b	30-Day/5-Year Low Flow:	0 MGD
Class:	III	30-Day/10-Year Low Flow:	0 MGD
Special Standard(s):	none	Harmonic Mean Flow:	0 MGD
Tidal?	No	On 303(d) list?	No

8. **FACILITY DESCRIPTION:** Describe the type facility from which the discharges originate.

Existing municipal discharge resulting from the discharge of treated domestic sewage.

There are no industrial users contributing to the treatment works. (See **ATTACHMENTS 1** and **3**.)

9. **LICENSED WASTEWATER OPERATOR REQUIREMENTS:** () No (x) Yes Class: II

10. **RELIABILITY CLASS:** II

11. **INSPECTION DATE:** 10/17/11

REPORT DATE: 10/18/11

Performed By: Troy Nipper

SEE ATTACHMENT 1

12. **DISCHARGE(S) LOCATION DESCRIPTION:** Provide USGS Topo which indicates the discharge location, significant (large) discharger(s) to the receiving stream, water intakes, and other items of interest.

Name of Topo: Kenbridge East

Quadrant No.: 042A

SEE ATTACHMENT 2

13. **ATTACH A SCHEMATIC OF THE WASTEWATER TREATMENT SYSTEM(S) [IND. & MUN.]. FOR INDUSTRIAL FACILITIES, ALSO PROVIDE A GENERAL DESCRIPTION OF THE PRODUCTION CYCLE(S) AND ACTIVITIES. FOR MUNICIPAL FACILITIES, PROVIDE A GENERAL DESCRIPTION OF THE TREATMENT PROVIDED.**

Narrative: The facility consists of influent screening and grit removal, primary clarification, a trickling filter, secondary clarification and chlorination. Effluent from the chlorine contact tank enters a wet well from where it is pumped to the existing inline storage pond (approximately 27 days storage based on 0.6 MGD), which covers approximately 8 acres. The wastewater from the pond is then applied intermittently (average 3-5 days per week at a rate less than 4 inches per week) onto approximately 22 acres of overland flow terraces. The flow is collected in a system of runoff collection channels and discharged intermittently through the effluent monitoring station, with a new post-aeration system, into Seay Creek.

SEE ATTACHMENT 3

14. **DISCHARGE DESCRIPTION:** Describe each discharge originating from this facility.

SEE ATTACHMENT 4

15. **COMBINED TOTAL FLOW:**

TOTAL: 0.6 MGD (for public notice)

PROCESS FLOW: MGD (IND.)

NONPROCESS FLOW: MGD (IND.)

DESIGN FLOW: 0.6 MGD (MUN.)

16. **STATUTORY OR REGULATORY BASIS FOR EFFLUENT LIMITATIONS AND SPECIAL CONDITIONS:** (Check all which are appropriate)

- ☒ State Water Control Law
- ☒ Clean Water Act
- ☒ VPDES Permit Regulation (9 VAC 25-31-10 et seq.)
- ☒ EPA NPDES Regulation (Federal Register)
- ☐ EPA Effluent Guidelines [40 CFR 400 – 471 (industrial)]
- ☒ EPA Effluent Guidelines [40 CFR 133 (municipal 2^o treatment)]
- ☒ Water Quality Standards (9 VAC 25-260-00 et seq.)
- ☐ Waste load Allocation from a TMDL or River Basin Plan

17. **LIMITATIONS/MONITORING:** Include all effluent limitations and monitoring requirements being placed in the permit for each outfall, including any WET limits. If applicable, include any limitations and monitoring requirements being included for sludge and ground water.

See Attachment 5 for effluent limitations and monitoring.

There are no applicable limitations and monitoring requirements for sludge.

18. **SPECIAL CONDITIONS:** Provide all actual permit special conditions, including compliance schedules, toxic monitoring, sludge, ground water, storm water and pretreatment.

SEE ATTACHMENT 6

19. **EFFLUENT/SLUDGE/GROUND WATER LIMITATIONS/MONITORING RATIONALE:** For outfalls, attach any analyses completed (**MIX.EXE** and **WLA.EXE**) and **STATS printouts** for individual toxic parameters. As a minimum, it will include: waste load allocation (acute, chronic and human health); statistics summary (number of data values, quantification level, expected value, variance, covariance, 97th percentile, and statistical method); input data listing; and, effluent limitations determination. Include all calculations used for each outfall's set of effluent limits and incorporate the results of any water quality model(s). Include all calculations/documentation of any antidegradation or anti-backsliding issues in the development of any limitations; complete the review statements below. Provide a rationale for limited internal waste streams and indicator pollutants. Attach any additional information used to develop the limitations, including any applicable water quality standards calculations (acute, chronic and human health).

OTHER CONSIDERATIONS IN LIMITATIONS DEVELOPMENT:

WAIVERS/VARIANCES/ALTERNATE LIMITATIONS: Provide justification or refutation rationale for requested waivers to the permit application (e.g., testing requirements) or variances/alternatives to required permit conditions/limitations. This includes, but is not limited to: variances from technology guidelines or water quality standards; WER/translator study consideration; variances from standard permit limits/conditions.

N/A

SUITABLE DATA: What, if any, effluent data were considered in the establishment of effluent limitations and provide all appropriate information/calculations.

All suitable effluent data were reviewed.

ANTIDEGRADATION REVIEW: Provide all appropriate information/calculations for the antidegradation review.

Tier I: _____ Tier II: X Tier III: _____

The State Water Control Board's Water Quality Standards regulations include an antidegradation policy (9 VAC 25-260-30). All state surface waters are provided one of three levels of antidegradation protection. For Tier I, existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier II water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier II waters is not allowed without an evaluation of the economic and social impacts. Tier III water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The antidegradation review begins with the Tier determination. The facility discharges to Seay Creek. This receiving stream is not listed on the 303(d) list and no in-stream data are available that indicate the water quality criteria either have been violated or are barely met. Therefore, Seay Creek, at the point of this facility's discharge, is designated as Tier II and no significant degradation of the existing water quality will be allowed.

ANTIBACKSLIDING REVIEW: Indicate if antibacksliding applies to this permit and, if so, provide all appropriate information.

There are no backsliding issues to address in this permit (i.e., limits as stringent or more stringent when compared to the previous permit).

SEE ATTACHMENT 7

20. **SPECIAL CONDITIONS RATIONALE:** Provide a rationale for each of the permit's special conditions, including compliance schedules, toxic monitoring, sludge, ground water, storm water and pretreatment.

SEE ATTACHMENT 8

21. **SLUDGE DISPOSAL PLAN:** Provide a brief description of the sludge disposal plan (e.g., type sludge, treatment provided and disposal method). Indicate if any of the plan elements are included within the permit.

Domestic sewage sludge is hauled to the Lunenburg County Landfill for final disposal.

22. **MATERIAL STORED:** List the type and quantity of wastes, fluids, or pollutants being stored at this facility. Briefly describe the storage facilities and list, if any, measures taken to prevent the stored material from reaching State waters.

Chlorine, 450 pounds, under roof
Hydrated lime, 50 pounds, under roof

23. **RECEIVING WATERS INFORMATION:** Refer to the State Water Control Board's Water Quality Standards [e.g., River Basin Section Tables (9 VAC 25-260 - Part IX) [along with Parts VII and VIII]]. Use 9 VAC 25-260-140 C (introduction and numbered paragraph) to address tidal waters where fresh water standards would be applied or transitional waters where the most stringent of fresh or salt water standards would be applied. Attach any memoranda or other information which helped to develop permit conditions (i.e. **flow determination memo, tier determinations**, PReP complaints, special water quality studies, **STORET data** and other biological and/or chemical data, etc.

SEE ATTACHMENT 9

24. **303(d) LISTED SEGMENTS:** Indicate if the facility **discharges directly** to a segment that is listed on the current 303(d) list, if the allocations are specified by an approved TMDL and, if so, provide all appropriate information/calculations. If the facility discharges directly to a stream segment that is on the current 303(d) list, the fact sheet must include a description of how the TMDL requirements are being met.

TMDLs are not included in this permit as the receiving waters are not listed on the 303(d) list.

25. **CHANGES TO PERMIT:** Use **TABLE A** to record any **changes from the previous permit** and the rationale for those changes. Use **TABLE B** to record any **changes made to the permit during the permit processing period** and the rationale for those changes [i.e., use for comments from the applicant, VDH, EPA, other agencies and/or the public where comments resulted in changes to the permit limitations or any other changes associated with the special conditions or reporting requirements].

SEE ATTACHMENT 10

26. **NPDES INDUSTRIAL PERMIT RATING WORKSHEET:**

N/A - This is a municipal facility.

27. **EPA/VIRGINIA DRAFT PERMIT SUBMISSION CHECKLIST:**

SEE ATTACHMENT 11

28. **DEQ PLANNING COMMENTS RECEIVED ON DRAFT PERMIT:** Document any comments received from DEQ planning.

The discharge is not addressed in any planning document but will be included when the plan is updated.

29. **PUBLIC PARTICIPATION:** Document comments/responses received during the public participation process. If comments/responses provided, especially if they result in changes to the permit, place in the attachment.

PREVIOUS BOARD ACTION: none

VDH COMMENTS RECEIVED ON DRAFT PERMIT: Document any comments received from the Virginia Dept. of Health and noted how resolved.

Based on their review of the application, the VDH had no objections to the draft permit, as stated by memo dated November 29, 2011. The VDH provided the following comments: "There are no public water supply raw water intakes within 15 miles downstream of the discharge."

EPA COMMENTS RECEIVED ON DRAFT PERMIT: Document any comments received from the U.S. Environmental Protection Agency and noted how resolved.

EPA waived the right to comment and/or object to the adequacy of the draft permit.

ADJACENT STATE COMMENTS RECEIVED ON DRAFT PERMIT: Document any comments received from an adjacent state and noted how resolved.

None

OTHER AGENCY COMMENTS RECEIVED ON DRAFT PERMIT: Document any comments received from any other agencies (e.g., VIMS, VMRC, DGIF, etc.) and noted how resolved.

None

STAFF COMMENTS:

None

OTHER COMMENTS RECEIVED FROM RIPARIAN OWNERS/CITIZENS ON DRAFT PERMIT: Document any comments received from other sources and note how resolved.

Public Notice Comments:

PUBLIC NOTICE INFORMATION: Comment Period: **Start Date:**
End Date:

All pertinent information is on file and may be inspected, and copied by contacting Frank Bowman at: Department of Environmental Quality (DEQ), Blue Ridge Regional Office-Lynchburg, 7705 Timberlake Road, Lynchburg, VA 24502. Telephone: 434-582-6207 E-mail: frank.bowman@deq.virginia.gov

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer and of all persons represented by the commenter/requester, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit. Requests for public hearings shall state 1) the reason why a hearing is requested; 2) a brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit; and 3) specific references, where possible, to terms and conditions of the permit with suggested revisions. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given. The public may review the draft permit and application at the DEQ Blue Ridge Regional Office by appointment.

30. **ADDITIONAL FACT SHEET COMMENTS/PERTINENT INFORMATION:**

The permittee is current with their annual permit maintenance fees.

31. SUMMARY OF SPECIFIC ATTACHMENTS LABELED AS:

- | | |
|------------------------|---|
| Attachment <u>1</u> | Site Inspection Report/Memorandum |
| Attachment <u>2</u> | Discharge Location/Topographic Map |
| Attachment <u>3</u> | Schematic/Plans & Specs/Site Map/Water Balance |
| Attachment <u>4</u> | Discharge/Outfall Description |
| Attachment <u>5</u> | Limitations/Monitoring |
| Attachment <u>6</u> | Special Conditions |
| Attachment <u>7</u> | Effluent/Sludge/Ground Water Limitations/Monitoring Rationale/Suitable Data/
Stream Modeling/Antidegradation/Antibacksliding |
| Attachment <u>8</u> | Special Conditions Rationale |
| Attachment <u> </u> | Material Stored |
| Attachment <u>9</u> | Receiving Waters Info./Tier Determination/STORET Data |
| Attachment <u> </u> | 303(d) Listed Segments |
| Attachment <u>10</u> | TABLE A and TABLE B - Change Sheets |
| Attachment <u> </u> | NPDES Industrial Permit Rating Worksheet |
| Attachment <u>11</u> | EPA/Virginia Draft Permit Submission Checklist |
| Attachment <u>12</u> | Chronology Sheet |
| Attachment <u> </u> | |

ATTACHMENT 1

INSPECTION REPORT/MEMORANDUM

VA DEQ Recon Inspection Report
Virginia Department of Environmental Quality
RECON INSPECTION REPORT

FACILITY NAME: Kenbridge STP		INSPECTION DATE: 10/17/11	
		INSPECTOR: Troy Nipper	
PERMIT No.: VA0026239		REPORT DATE: 10/18/11	
TYPE OF FACILITY:	<input checked="" type="checkbox"/> Municipal	<input type="checkbox"/> Major	TIME OF INSPECTION:
	<input type="checkbox"/> Industrial	<input checked="" type="checkbox"/> Minor	
	<input type="checkbox"/> Federal	<input type="checkbox"/> Small Minor	TOTAL TIME SPENT (including prep & travel)
	<input type="checkbox"/> HP	<input type="checkbox"/> LP	
		Arrival 1110	Departure 1230
		10 hours	
PHOTOGRAPHS: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		UNANNOUNCED INSPECTION? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
REVIEWED BY / Date: F. T. DiLella			
PRESENT DURING INSPECTION: Jerry Smith - Operator			

INSPECTION OVERVIEW AND CONDITION OF TREATMENT UNITS

Bar Screen	Mechanical screen on-line. The brush motor is locked up. A new motor is on order. See the required corrective actions section of this report.
Grit	Okay
Primary Clarifier	Okay. Moderate amount of grease in the centerwell. The operator stated the well and weirs are hosed down on a regular basis.
Trickling Filter P.S.	Okay. A portion of the trickling filter effluent is directed to the pump station for recirculation.
Trickling Filter	No odors noted.
Secondary Clarifier	Weirs are cleaned twice per week.
CCT	Okay
De-chlorination	Okay
Digesters	The #2 digester is off-line. See the required corrective actions section of this report.
Lagoon Pump Station	The flow from the CCT is pumped to the lagoon.
Lagoon	Okay. Moderate amount of duckweed on the surface.
Terrace fields	The right one is in use. The grass was recently cut from the fields.

EFFLUENT FIELD DATA:

Flow	MGD	Dissolved Oxygen	mg/L	TRC (Contact Tank)	mg/L
pH	S.U.	Temperature	°C	TRC (Final Effluent)	mg/L
Was a Sampling Inspection conducted? <input type="checkbox"/> Yes (see Sampling Inspection Report) <input checked="" type="checkbox"/> No					
Comments: Effluent testing not performed.					

VA DEQ Recon Inspection Report

Permit # VA0026239

CONDITION OF OUTFALL AND EFFLUENT CHARACTERISTICS:

1. Type of outfall: ☐ Shore Based ☐ Submerged Diffuser? ☐ Yes ☐ No
2. Are the outfall and supporting structures in good condition? ☐ Yes ☐ No
3. Final Effluent (evidence of following problems):
☐ Sludge bar ☐ Grease
☐ Turbid effluent ☐ Visible foam ☐ Unusual color ☐ Oil sheen
4. Is there a visible effluent plume in the receiving stream? ☐ Yes ☐ No
5. Receiving stream: ☐ No observed problems ☐ Indication of problems (explain below)

Comments: **The outfall was not observed due to its location. The effluent appeared clear at the effluent parshall flume.**

REQUIRED CORRECTIVE ACTIONS:

1. Submit an update on the status of repairs to the bar screen brush.
2. The following events occurred at the plant concerning the #2 digester.
 - a. In April, 2011/ May, 2011, it was noted there were holes (~6) developing in the tank.
 - b. On October 4, 2011, a contractor was to transfer the contents of the #2 tank to the #1 tank. However, there was residual petroleum product in the vac truck tank that was dumped into the #1 digester.
 - c. On October 6, 2011, the material was removed and placed back into the #2 digester.
 - d. On October 14, 2011, part of the material was removed from the #2 digester. There is still a significant amount left.
 - e. As of the day of the inspection, the contractor was contacted by DEQ/BRRO PReP staff. The contractor is making plans to remove the material.

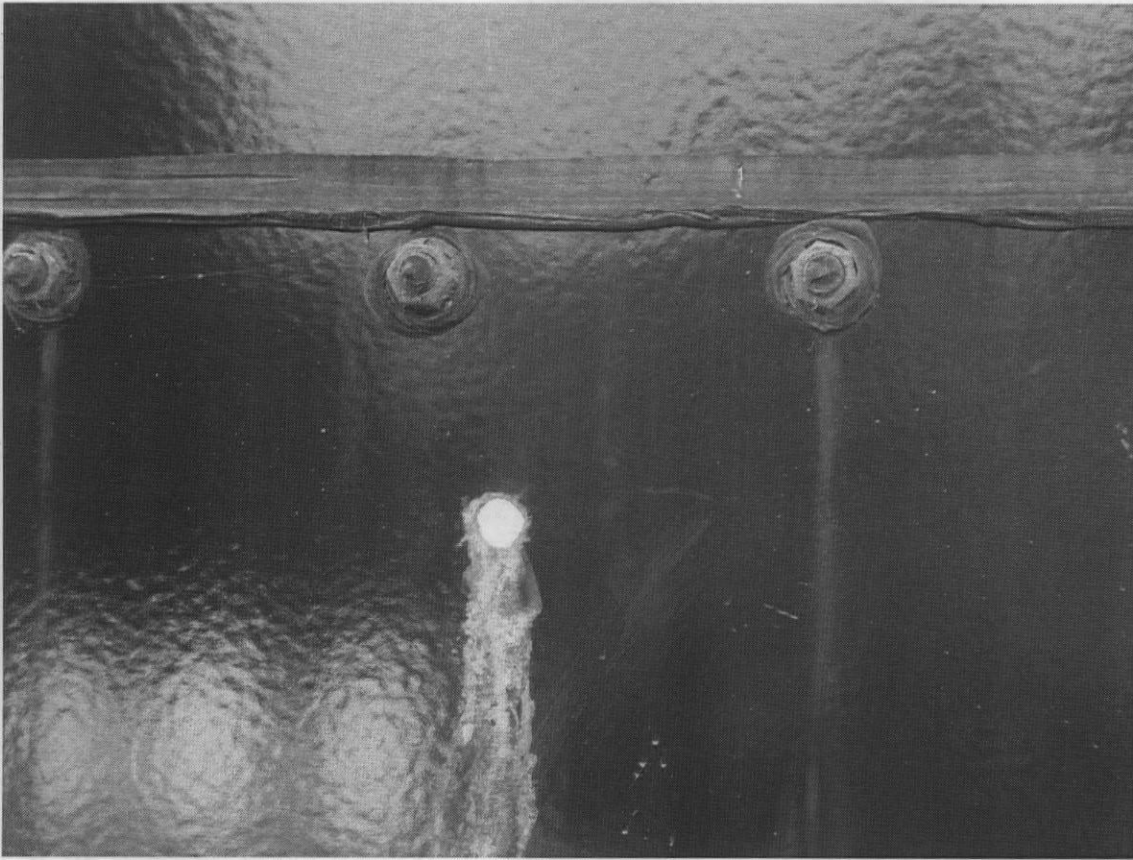
Submit an update on the status of cleaning and repairing the #2 digester. Additionally, include a tentative schedule for completion of the project.

NOTES and COMMENTS:

There are no additional comments at this time.

VA DEQ Recon Inspection Report

Permit #	VA0026239
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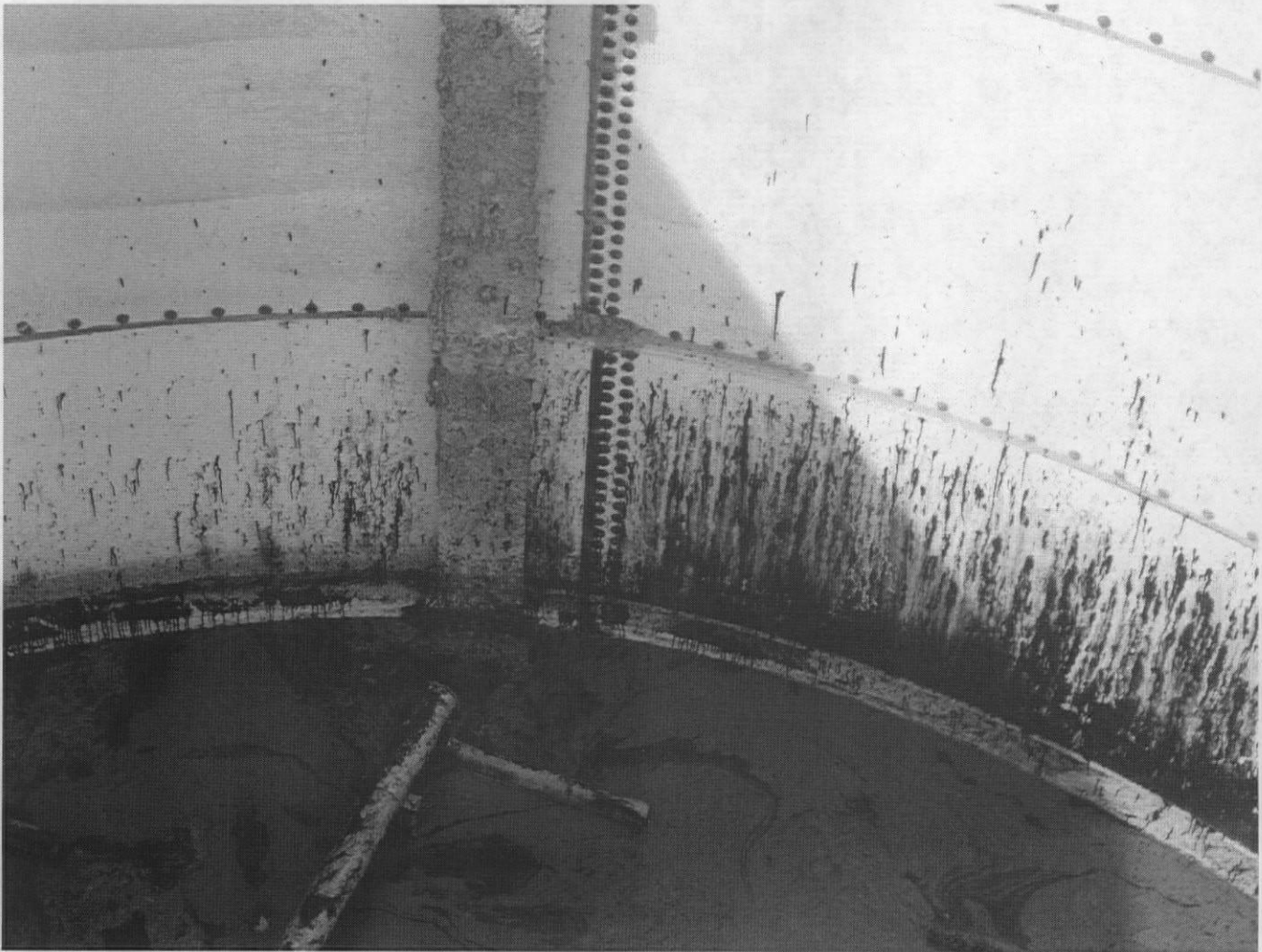


Digester #2

VA DEQ Recon Inspection Report

Permit #

VA0026239

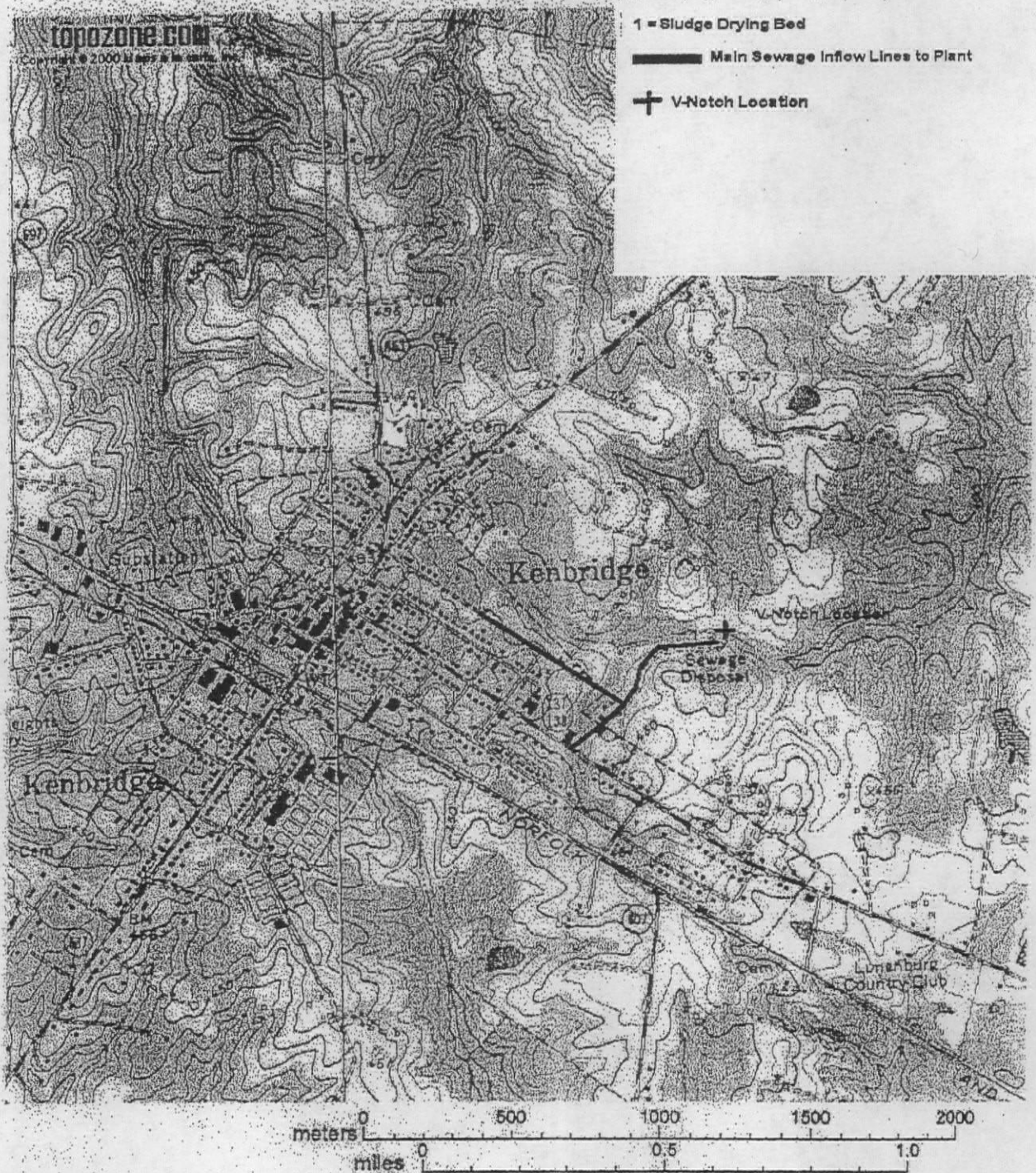


Digester #2

ATTACHMENT 2

DISCHARGE LOCATION/TOPOGRAPHIC MAP

Target is 36° 57' 44"N, 78° 06' 37"W - KENBRIDGE EAST quad



ATTACHMENT 3

SCHEMATIC

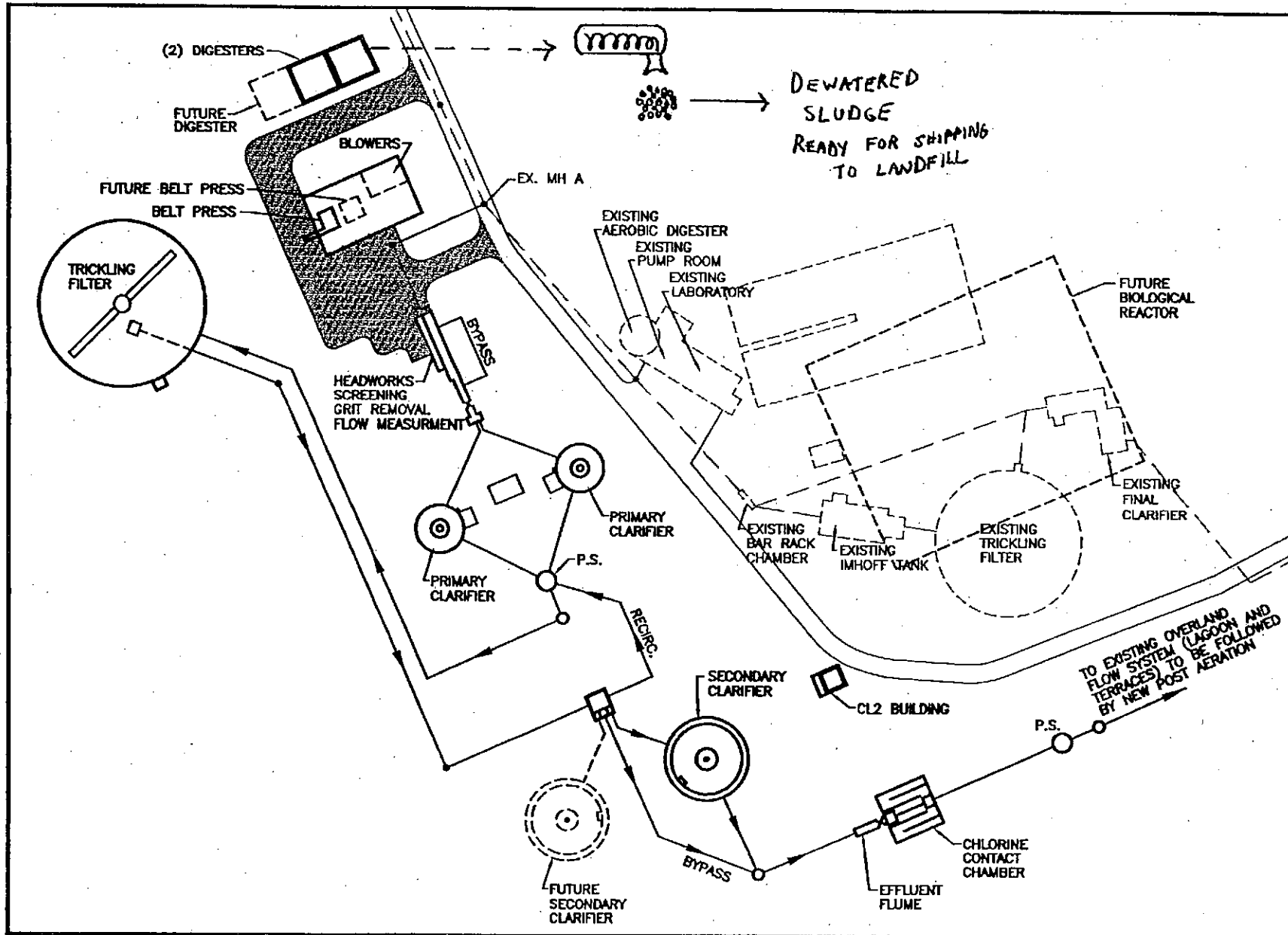


FIGURE 4-1

PROPOSED EXPANSION OF OVERLAND FLOW SYSTEM

Dewberry & Davis, Inc.
 A Dewberry Company

561 Power Road, Suite 200, Fairfax, VA 22031
 P.O. Box 1000, Fairfax, VA 22031
 Tel: (703) 771-4817 Fax: (703) 771-4345
 www.dewberry.com

N.T.S.
 MARCH, 2003

P:\41800\ENG\DWG\4-1 SITE

ATTACHMENT 4

DISCHARGE/OUTFALL DESCRIPTION

TABLE I
NUMBER AND DESCRIPTION OF OUTFALLS

OUTFALL NO.	DISCHARGE LOCATION	DISCHARGE SOURCE (1)	TREATMENT (2)	FLOW (3)
001	36° 57' 47" 78° 6' 33"	domestic sewage treatment plant	influent screening and grit removal, primary clarification, a trickling filter, secondary clarification and chlorination; effluent then goes to the storage pond for application to an overland flow system prior to post-aeration and discharge	0.6 MGD

(1) List operations contributing to flow

(2) Give brief description, unit by unit

(3) Give maximum 30-day average flow for industry and design flow for municipal

ATTACHMENT 5

LIMITATIONS/MONITORING

MUNICIPAL EFFLUENT LIMITATIONS/MONITORING

OUTFALL # 001 DESIGN FLOW: 0.6 MGD

Outfall Description: Final effluent after post-aeration

SIC CODE: 4952 NAICS CODE: 22132

(x) Final Limits () Interim Limits Effective Dates - From: Permit Effective date

To: Permit expiration date

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS					MONITORING REQUIREMENTS		
	MONTHLY AVERAGE		WEEKLY AVERAGE		MINIMUM	MAXIMUM	FREQUENCY	SAMPLE TYPE
Flow (MGD)	NL		NA		NA	NL	Continuous	TIRE
Influent Flow (MGD) [a]	NL		NA		NA	NL	Continuous	TIRE
cBOD5 (May - December) [c]	8 mg/l	18 kg/d	12 mg/l	27 kg/d	NA	NA	3 Days/Week	8-HC
cBOD5 (January - April) [c]	18 mg/l	41 kg/d	27 mg/l	61 kg/d	NA	NA	3 Days/Week	8-HC
Total Suspended Solids [c]	30 mg/l	68 kg/d	45 mg/l	102 kg/d	NA	NA	3 Days/Week	8-HC
TKN (May - December) [c]	3.0 mg/l	7 kg/d	4.5 mg/l	10 kg/d	NA	NA	3 Days/Week	8-HC
TKN (January - April) [c]	12 mg/l	27 kg/d	18 mg/l	41 kg/d	NA	NA	3 Days/Week	8-HC
Ammonia (as N) (January - April) [c][d][e]	6.6 mg/l		6.6 mg/l		NA	NA	1/2 Weeks	8-HC
Total Recoverable Iron [c]	300 µg/l		300 µg/l		NA	NA	1/Month	Grab
Total Residual Chlorine [b][c][d]	2.4 µg/l		2.9 µg/l		NA	NA	3/Day *	Grab
pH	NA		NA		6.0 SU	9.0 SU	1/Day	Grab
Dissolved Oxygen (May - December)	NA		NA		6.5 mg/l	NA	1/Day	Grab
Dissolved Oxygen (January - April)	NA		NA		7.5 mg/l	NA	1/Day	Grab

* = at 4-hour intervals NA = NOT APPLICABLE NL = NO LIMIT, MONITORING REQUIREMENT ONLY

TIRE = TOTALIZING, INDICATING AND RECORDING EQUIPMENT

[a] See Part I.D.1. for additional flow requirements.

[b] See Part I.B for additional chlorine monitoring instructions.

[c] See Parts I.D.8.a. and I.D.8.b. for quantification levels and reporting requirements, respectively.

[d] The effluent limits for these parameters are based on acute water quality standards. The permit may be reopened if the permittee discharges to the receiving stream for a period exceeding four consecutive days.

[e] See Part I.C for Schedule of Compliance. No monitoring or reporting required until after completion of the schedule.

The design flow of this treatment facility is 0.6 MGD.

At least 85% removal for BOD5 and TSS must be attained for this effluent.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

BASES FOR LIMITATIONS/MONITORING:

PARAMETER	MULTIPLIER OR PRODUCTION	TECHNOLOGY	WATER QUALITY	BEST PROFESSIONAL JUDGMENT
Flow	NA			n/a
Influent Flow	Design flow (0.6 MGD)			n/a
pH	NA	X	X	
cBOD5 (mg/l)	Water quality model (monthly avg.) 1.5 x monthly avg. (max. weekly avg.)		X	
cBOD5 (kg/day)	Design flow (0.6 MGD)		X	
TSS (mg/l)	30/45	X		
TSS (kg/day)	Design flow (0.6 MGD)	X		
Total recoverable iron, TKN, ammonia, chlorine	NA		X	
Dissolved oxygen	NA		X	

GROUND WATER LIMITATIONS/MONITORING

GW WELL # 1, 2 and 3

Site Description: Ground water monitoring wells – well nos. 1, 2 and 3

SIC CODE: 4952 NAICS CODE: 22132

(x) Final Limits () Interim Limits Effective Dates - From: Permit Effective date To: Permit expiration date

PARAMETER	LIMITATIONS	UNITS	MONITORING REQUIREMENTS	
			FREQUENCY	SAMPLE TYPE
Static Water Level	NL	0.01 FT	1/Year	Measured
pH	NL	SU	1/Year	Grab
Chlorides	NL	mg/l	1/Year	Grab
Specific Conductance	NL	µmhos/cm	1/Year	Grab
Total Organic Carbon	NL	mg/l	1/Year	Grab
Fecal Coliform	NL	N/Cml	1/Year	Grab
Total Phosphorus	NL	mg/l	1/Year	Grab
Ammonia - Nitrogen	NL	mg/l	1/Year	Grab
Nitrate - Nitrogen	NL	mg/l	1/Year	Grab

NA = NOT APPLICABLE; NL = NO LIMIT, MONITORING REQUIREMENT ONLY

1/Year = Between January 1 and December 31, **due January 10 of following year.**

Grab samples - An individual sample should be taken after three (3) well volumes of ground water are removed (allowing the well to recharge between each well volume removed) or until well purging parameters (i.e. pH, temperature, and specific conductance) stabilize to $\pm 10\%$. The bailer or hose used should not contaminate samples.

ATTACHMENT 6

SPECIAL CONDITIONS

VPDES PERMIT PROGRAM
LIST OF SPECIAL CONDITIONS

B. ADDITIONAL TOTAL RESIDUAL CHLORINE (TRC) LIMITATIONS AND MONITORING REQUIREMENTS

1.
 - a. The permittee shall monitor the TRC at the outlet of each operating chlorine contact tank three times per day at 4-hour intervals by grab sample.
 - b. No more than 9 of all samples taken at the outlet of each chlorine contact tank shall be less than 1.0 mg/l (DMR # 157) for any one calendar month.
 - c. No TRC sample collected at each outlet of the chlorine contact tank shall be less than 0.60 mg/l (DMR # 213).
 - d. If dechlorination facilities exist the samples above shall be collected prior to dechlorination.
2. If an alternative to chlorination as a disinfection method is chosen, *E. coli* shall be limited and monitored by the permittee as specified below:

	<u>Discharge Limitations</u>	<u>Monitoring Requirements</u>	
	<u>Monthly Average</u>	<u>Frequency</u>	<u>Sample Type</u>
<i>E. coli</i> (n/100 ml)	126*	3 days/week	Grab (Between 10 AM & 4 PM)

The above requirements, if applicable, shall substitute for the TRC requirements delineated in Parts I.A. and I.B.1 above.

* Geometric Mean

C. SCHEDULE OF COMPLIANCE

The permittee shall achieve compliance with the final limitations and monitoring requirements for ammonia as specified in Part I.A. of this permit in accordance with the following schedule:

1. Submit Proposed Plan for Achievement of Compliance or Select a Design Engineer **No later than October 10, 2012.**
2. Submit Progress Reports to the DEQ Regional Office **Quarterly after #1, with the first report due January 10, 2013.**
3. Achieve Compliance with Part I.A. Limitations **No later than June 10, 2016.**

Quarterly = In accordance with the following schedule: 1st quarter (January 1 - March 31, **due April 10**); 2nd quarter (April 1 - June 30, **due July 10**); 3rd quarter (July 1 - September 30, **due October 10**); 4th quarter (October 1 - December 31, **due January 10**).

No later than 14 calendar days following a date identified in the above schedule of compliance, the permittee shall submit to the DEQ Regional Office, either a **report of progress** or, in the case of specific actions being required by identified dates, a written **notice of compliance or noncompliance**. In the latter case, the notice shall

include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

D. OTHER REQUIREMENTS OR SPECIAL CONDITIONS

1. 95% Design Capacity Notification

A written notice and a **plan of action** for ensuring continued compliance with the terms of this permit shall be submitted to the DEQ Regional Office when the monthly average flow influent to the sewage treatment plant reaches 95 percent of the design capacity authorized in this permit for each month of any three consecutive month period. The written notice shall be submitted within 30 days and the plan of action shall be received at the DEQ Regional Office **no later than 90 days from the third consecutive month for which the flow reached 95 percent of the design capacity.** The plan shall include the necessary steps and a prompt schedule of implementation for controlling any current or reasonably anticipated problem resulting from high influent flows. Failure to submit an adequate plan in a timely manner shall be deemed a violation of this permit.

2. Indirect Dischargers

The permittee shall provide adequate notice to the DEQ Regional Office of the following:

- a. Any new introduction of pollutants into the treatment works from an indirect discharger which would be subject to Section 301 or 306 of Clean Water Act and the State Water Control Law if it were directly discharging those pollutants; and
- b. Any substantial change in the volume or character of pollutants being introduced into the treatment works by a source introducing pollutants into the treatment works at the time of issuance of this permit.

Adequate notice shall include information on (i) the quality and quantity of effluent introduced into the treatment works, and (ii) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the treatment works.

3. CTC, CTO Requirements

The permittee shall, in accordance with the DEQ Sewage Collection and Treatment Regulation (9VAC25-790), obtain a Certificate to Construct (CTC), and a Certificate to Operate (CTO) from the DEQ Office of Wastewater Engineering (for Water Quality Improvement Funded (WQIF) projects) or submitted by the design engineer and owner to the DEQ regional water permit manager (for non WQIF projects) prior to constructing wastewater treatment works and operating the treatment works, respectively. Non-compliance with the CTC or CTO shall be deemed a violation of the permit.

4. Operations and Maintenance (O & M) Manual

The permittee shall review the existing Operations and Maintenance (O & M) Manual and notify the DEQ Regional Office in writing within 90 days of the effective date of this permit whether it is still accurate and complete. If the O & M Manual is no longer accurate and complete, a revised O & M Manual shall be submitted for approval to the DEQ Regional Office within 90 days of the effective date of this permit. The permittee will maintain an accurate, approved operation and maintenance manual for the treatment works. This manual shall detail the practices and procedures which will be followed to ensure compliance with the requirements of the permit. The permittee shall operate the treatment works in accordance with the approved O&M Manual. This manual shall include, but not necessarily be limited to, the following items, as appropriate:

- a. Techniques to be employed in the collection, preservation, and analysis of effluent and sludge

- samples;
- b. Procedures for measuring and recording the duration and volume of treated wastewater discharged;
- c. Discussion of Best Management Practices, if applicable;
- d. Procedures for handling, storing, and disposing of all wastes, fluids, and pollutants that will prevent these materials from reaching state waters.
- e. Treatment works design, treatment works operation, routine preventative maintenance of units within the treatment system, critical spare parts inventory and record keeping; and,
- f. A plan for the management and/or disposal of waste solids and residues.

Any changes in the practices and procedures followed by the permittee shall be documented and submitted for DEQ Regional staff approval within 90 days of the effective date of the changes. Upon approval of the submitted manual changes, the revised manual becomes an enforceable part of the permit. Noncompliance with the O & M Manual shall be deemed a violation of the permit.

Letter/Revised Manual Due: No later than September 9, 2012.

5. Sludge Reopener

The Board may promptly modify or revoke and reissue this permit if any applicable standard for sewage sludge use or disposal promulgated under Section 405(d) of the Clean Water Act is more stringent than any requirements for sludge use or disposal in this permit, or controls a pollutant or practice not limited in this permit.

6. Licensed Wastewater Operator Requirement

The permittee shall employ or contract at least one Class III licensed wastewater works operator for the facility. The license shall be issued in accordance with Title 54.1 of the Code of Virginia and the regulations of the Board for Waterworks and Wastewater Works Operators. The permittee shall notify the DEQ Regional Office, in writing, whenever he is not complying, or has grounds for anticipating he will not comply with this requirement. The notification shall include a statement of reasons and a prompt schedule for achieving compliance.

7. Reliability Class Requirement

The permitted treatment works shall meet Reliability Class II.

8. Compliance Reporting

a. Quantification Levels

The quantification levels (QL) shall be less than or equal to the following concentrations:

<u>Effluent Parameter</u>	<u>Quantification Level</u>
cBOD5	5.0 mg/l
TSS	5.0 mg/l
Total Kjeldahl Nitrogen	0.50 mg/l
Ammonia	0.20 mg/l
Total Recoverable Iron	100 µg/l
Chlorine	0.10 mg/l

The QL is defined as the lowest concentration used to calibrate a measurement system in accordance with the procedures published for the method. It is the responsibility of the permittee to ensure that proper quality assurance/quality control (QA/QC) protocols are followed during the sampling and analytical procedures. QA/QC information shall be documented to confirm that

appropriate analytical procedures have been used and the required QLs have been attained. The permittee shall use any method in accordance with Part II A of this permit.

- b. **Monthly Average** -- Compliance with the monthly average limitations and/or reporting requirements for the parameters listed in subsection a. of this permit condition shall be determined as follows: All concentration data below the QL used for the analysis (QL must be less than or equal to the QL listed in a. above) shall be treated as zero. All concentration data equal to or above the QL used for the analysis (QL must be less than or equal to the QL listed in a. above) shall be treated as it is reported. An arithmetic average shall be calculated using all reported data for the month, including the defined zeros. This arithmetic average shall be reported on the Discharge Monitoring Report (DMR) as calculated. If all data are below the QL used for the analysis (QL must be less than or equal to the QL listed in a. above), then the average shall be reported as "<QL". If reporting for quantity is required on the DMR and the reported monthly average concentration is <QL, then report "<QL" for the quantity. Otherwise use the reported concentration data (including the defined zeros) and flow data for each sample day to determine the daily quantity and report the monthly average of the calculated daily quantities.

Weekly Average -- Compliance with the weekly average limitations and/or reporting requirements for the parameters listed in subsection a. of this permit condition shall be determined as follows: All concentration data below the QL used for the analysis (QL must be less than or equal to the QL listed in a. above) shall be treated as zero. All concentration data equal to or above the QL used for the analysis (QL must be less than or equal to the QL listed in a. above) shall be treated as reported. An arithmetic average shall be calculated using all reported data, including the defined zeros, collected within each complete calendar week and entirely contained within the reporting month. The maximum value of the weekly averages thus determined shall be reported on the DMR. If all data are below the QL used for the analysis (QL must be less than or equal to the QL listed in a. above), then the weekly average shall be reported as "<QL". If reporting for quantity is required on the DMR and the reported weekly average concentration is <QL, then report "<QL" for the quantity. Otherwise use the reported concentration data (including the defined zeros) and flow data for each sample day to determine the daily quantity and report the maximum weekly average of the calculated daily quantities.

Daily Maximum -- Compliance with the daily maximum limitations and/or reporting requirements for the parameters listed in subsection a. of this permit condition shall be determined as follows: All concentration data below the QL used for the analysis (QL must be less than or equal to the QL listed in a. above) shall be treated as zero. All concentration data equal to or above the QL used for the analysis (QL must be less than or equal to the QL listed in a. above) shall be treated as reported. An arithmetic average shall be calculated using all reported data, including the defined zeros, collected within each day during the reporting month. The maximum value of these daily averages thus determined shall be reported on the DMR as the Daily Maximum. If all data are below the QL used for the analysis (QL must be less than or equal to the QL listed in a. above), then the maximum value of the daily averages shall be reported as "<QL". If reporting for quantity is required on the DMR and the reported daily maximum concentration is <QL, then report "<QL" for the quantity. Otherwise use the reported daily average concentrations (including the defined zeros) and corresponding daily flows to determine daily average quantities and report the maximum of the daily average quantities during the reporting month.

Single Datum - Any single datum required shall be reported as "<QL" if it is less than the QL used for the analysis (QL must be less than or equal to the QL listed in a. above). Otherwise the numerical value shall be reported.

- c. **Significant Digits** -- The permittee shall report at least the same number of significant digits as the permit limit for a given parameter. Regardless of the rounding convention used by the permittee (i.e., 5 always rounding up or to the nearest even number), the permittee shall use the

convention consistently, and shall ensure that consulting laboratories employed by the permittee use the same convention.

9. Materials Handling and Storage

Any and all product, materials, industrial wastes, and/or other wastes resulting from the purchase, sale, mining, extraction, transport, preparation and/or storage of raw or intermediate materials, final product, by-product or wastes, shall be handled, disposed of and/or stored in such a manner so as not to permit a discharge of such product, materials, industrial wastes and/or other wastes to State waters, except as expressly authorized.

10. Ground Water Monitoring Plan

The permittee shall continue sampling and reporting in accordance with the current ground water monitoring plan. The purpose of this plan is to determine if the system integrity is being maintained and to indicate if activities at the site are resulting in violations of the Board's Ground Water Standards. The approved plan is an enforceable part of the permit. Any changes to the plan must be submitted for approval to the DEQ Regional Office.

If monitoring results indicate that any unit has contaminated the ground water, the permittee shall submit a corrective action plan within 60 days of being notified by the regional office. The plan shall set forth the steps to be taken by the permittee to ensure that the contamination source is eliminated or that the contaminant plume is contained on the permittee's property. In addition, based on the extent of contamination, a risk analysis may be required. Once approved, this plan and/or analysis shall be incorporated into the permit by reference and become an enforceable part of this permit.

Monitoring Schedule:

1/Year = Between January 1 and December 31, **due January 10 of following year.**

11. Sludge Management Plan

The permittee shall conduct all sewage sludge use or disposal activities in accordance with the Sludge Management Plan (SMP) approved with the issuance of this permit. Any **proposed changes** in the sewage sludge use or disposal practices or procedures followed by the permittee shall be documented and **submitted for Department of Environmental Quality approval 90 days prior to the effective date of the changes.** Upon approval, the revised SMP becomes an enforceable part of the permit. The permit may be modified or, alternatively, revoked and reissued to incorporate limitations or conditions necessitated by substantive changes in sewage sludge use or disposal practices.

12. Total Maximum Daily Load (TMDL) Reopener

This permit shall be modified or alternatively revoked and reissued if any approved wasteload allocation procedure, pursuant to Section 303(d) of the Clean Water Act, imposes wasteload allocations, limits or conditions on the facility that are not consistent with the permit requirements.

13. Closure Plan

If the permittee plans an expansion or upgrade to replace the existing treatment works, or if the facility is permanently closed, the permittee shall submit to the DEQ Regional Office a closure plan for the existing treatment works. The plan shall address the following information as a minimum: Verification of elimination of sources and/or alternate treatment scheme; treatment, removal and final disposition of residual wastewater and solids; removal/demolition/disposal of structures, equipment, piping and appurtenances; site grading, and erosion and sediment control; restoration of site vegetation; access control; fill materials; and proposed land use (post-closure) of the site. The plan should contain proposed

dates for beginning and completion of the work. The plan must be approved by the DEQ prior to implementation.

14. Permit Application Requirement

In accordance with Part II. M. of this permit, a new and complete permit application shall be submitted for the reissuance of this permit.

Application Due: No later than December 12, 2016.

E. PRETREATMENT PROGRAM

1. The permittee shall submit to the Department of Environmental Quality (DEQ) Regional Office a survey of all Industrial Users discharging to the POTW. The information shall be submitted on the DEQ Discharger Survey Form, or an equivalent form that includes the quantity and quality of the wastewater. Survey results shall include the identification of significant industrial users of the POTW.

Survey Due: No later than December 8, 2012.

2. Should evaluation by the DEQ of results of the Industrial User survey conducted in accordance with 1. above indicate that the permittee is not required to implement a pretreatment program, the requirements for program development described in 4. below may be suspended by the DEQ.
3. If Categorical Industrial User(s) are identified, or if the permittee or DEQ determines that the industrial user(s) have potential to adversely affect the operation of the POTW or cause violation(s) of federal, state or local standards or requirements, **the permittee shall develop and submit to the DEQ Regional Office within one year of written notification by DEQ a pretreatment program for approval.** The program shall enable the permittee to control by permit the Significant Industrial Users* discharging wastewater to the treatment works.
4. The approvable pretreatment program submission shall at a minimum contain the following parts:
 - a. Legal authority,
 - b. Program procedures,
 - c. Funding and resources,
 - d. Local limits evaluation, and local limits if needed,
 - e. Enforcement response plan, and
 - f. List of Significant Industrial Users *.
5. Where the permittee is required to develop a pretreatment program, they shall submit to the DEQ Regional Office an annual report no later than January 31 of each year and must include:
 - a. An updated list of the Significant Industrial Users* noting all of the following:
 - 1) facility address, phone and contact name
 - 2) explanation of SIUs deleted from the previous year's list
 - 3) identify which IUs are subject to Categorical Standards and note which Standard (ie. metal finishing)
 - 4) specify which 40 CFR part(s) is/are applicable
 - 5) indicate which IUs are subject to local standards that are more stringent than Categorical Pretreatment Standards
 - 6) indicate which IUs are subject only to local requirements
 - 7) identify which IUs are subject to Categorical Pretreatment Standards that are subject to reduced reporting requirements under 9VAC25-31-840 E.3.
 - 8) identify which IUs are non-significant Categorical Industrial Users

- b. A summary of the compliance status of each Significant Industrial User with pretreatment standards and permit requirements.
 - c. A summary of the number and types of Significant Industrial User sampling and inspections performed by the POTW.
 - d. All information concerning any interference, upset, VPDES permit or Water Quality Standards violations directly attributable to Significant Industrial Users and enforcement actions taken to alleviate said events.
 - e. A description of all enforcement actions taken against Significant Industrial Users over the previous 12 months.
 - f. A summary of any changes to the submitted pretreatment program that have not been previously reported to the DEQ Regional Office.
 - g. A summary of the permits issued to Significant Industrial Users since the last annual report.
 - h. POTW and self-monitoring results for Significant Industrial Users determined to be in significant non-compliance during the reporting period.
 - i. Results of the POTW's influent/effluent/sludge sampling, not previously submitted to DEQ.
 - j. Copies of newspaper publications of all Significant Industrial Users in significant non-compliance during the reporting period. This is due no later than March 31 of each year.
 - k. Signature of an authorized representative.
6. The DEQ may require the POTW to institute changes to the legal authority regarding Significant Industrial User permit(s):
- a. If the legal authority does not meet the requirements of the Clean Water Act, Water Control Law or State regulations;
 - b. If problems such as interferences, pass-through, violations of water quality standards or sludge contamination develop or continue; and
 - c. If federal, state or local requirements change.

* A significant industrial user is one that:

- Has an average flow of 25,000 gallons or more per workday of process** wastewater;
- Contributes a process wastestream which makes up 5.0-percent or more of the average dry weather hydraulic or organic capacity of the POTW;
- Is subject to the categorical pretreatment standards; or
- Has significant impact, either singularly or in combination with other Significant Dischargers, on the treatment works or the quality of its effluent.

**Excludes sanitary, non-contact cooling water and boiler blowdown.

F. OPERATION OF POLISHING LAGOON AND OVERLAND FLOW SYSTEM

1. The polishing pond and overland flow system shall be operated to provide adequate wastewater storage capacity to accommodate periods when the overland flow terraces are taken out of service for maintenance, or other periods when physical limitations prohibit the use of the terraces for treatment of wastewater.
2. The polishing pond shall maintain one foot of freeboard at all times, up to and including a 25-year, 24-hour storm.
3. The permittee shall not operate the overland flow system when the ground is frozen or covered with snow.
4. The permittee shall not use biosolids or animal manure as supplemental fertilizer on the terraces.
5. No persistent (i.e., non-biodegradable) pesticides or herbicides shall be applied to the terraces.
6. Records shall be maintained by the permittee for the following:
 - a. Where and what rate wastewater is applied to the terraces;
 - b. Where and when grass is cut and removed from the terraces;
 - c. Date, type and amount of supplemental fertilizers (including lime) applied to the terraces;
 - d. Date, type and area of reseeding or resodding on the terraces;
 - e. Polishing Pond freeboard (estimated once per week);
 - f. Daily precipitation on the terraces.

These records shall be maintained on site for a period of five years after recorded application is made and shall be made available to Department personnel upon request.

7. The permittee shall remove an overland flow terrace from service for the following reasons:
 - a. Any noticeable erosion on the terrace slopes or troughs to which the terraces drain, until the eroded areas are backfilled to grade and grass restored;
 - b. When cutting the grass on the terrace, until the grass clippings have been removed from the terrace.
 - c. Application of pesticides or herbicides, until the time for biodegradation specified by the manufacturer has elapsed.
 - d. Application of supplemental fertilizer, during the time application is performed.
 - e. Any other condition that would either result in reduced wastewater treatment efficiency, or the release of pollutants not regulated by this permit.

ATTACHMENT 7

EFFLUENT/MONITORING RATIONALE/SUITABLE DATA/STREAM MODELING

Kenbridge STP

History of WWTP

1996 Reissuance (Effective: December 3, 1996 - December 3, 2001)

design flow = 0.3 MGD

The treatment works consist of a screening, primary clarification, trickling filter, secondary clarification, chlorine disinfection, polishing pond, overland flow treatment and post aeration. Solids handling consists of aerobic digestion and sand drying beds.

2002 Reissuance (Expired: February 20, 2002; Effective: June 10, 2002 - June 10, 2007)

design flow = 0.3 MGD

The treatment works consist of screening, Imhoff tank, trickling filter, secondary clarification, chlorine disinfection, polishing pond (approximately 50 days detention time at design flow), overland flow and post aeration.

2007 Reissuance (Effective: June 11, 2007 - June 10, 2012)

design flow = 0.3 MGD, to expand to 0.6 MGD

received CTO on July 2, 2009 (expansion)

Treatment: Existing 0.3 MGD facility - influent screening, primary settling in an Imhoff tank, a trickling filter, secondary clarification and chlorination.

Expanded 0.6 MGD facility - influent screening and grit removal, primary clarification, a trickling filter, secondary clarification and chlorination.

For both, from the chlorine contact tank, effluent goes to a storage pond for application to an overland flow system prior to post-aeration and discharge.

The facility's design flow was 0.3 MGD from before 1996 until 2009. A CTO for operation at average daily flow (design flow) of 0.60 MGD was issued July 2, 2009.

History of Parameters

pH

1996 reissuance - 6.0 and 9.0

2002 reissuance - 6.0 and 9.0

2007 reissuance - 6.0 and 9.0

BOD/cBOD

1996 reissuance - BOD of 28 mg/l and 42 mg/l

32 kg/d and 48 kg/d

2002 reissuance - BOD of 28 mg/l and 42 mg/l

32 kg/d and 48 kg/d

2007 reissuance - BOD of 28 mg/l and 42 mg/l

32 kg/d and 48 kg/d

0.3 MGD concentration limits (above) based on water quality model

0.6 MGD - cBOD May-December: 8 mg/l and 12 mg/l

18.2 kg/d and 27.2 kg/d

cBOD January-April: 18 mg/l and 27 mg/l

40.8 kg/d and 61.3 kg/d

0.6 MGD May-December concentration limits based on revised water quality model

TSS

1996 reissuance - 30 mg/l and 45 mg/l

34 kg/d and 51 kg/d

2002 reissuance - 30.0 mg/l and 45.0 mg/l

34.0 kg/d and 51.0 kg/d

2007 reissuance - 30.0 mg/l and 45.0 mg/l

68.1 kg/d and 102.2 kg/d

TKN

1996 reissuance - none

2002 reissuance - none

2007 reissuance - May-December: 3.0 mg/l and 4.5 mg/l 6.8 kg/d and 10.2 kg/d
January-April: 12 mg/l and 18 mg/l 27.2 kg/d and 40.8 kg/d
TKN limits protective of ammonia

Ammonia

In May 1996, it was determined that ammonia nitrogen limitations were unnecessary for this facility. A check was run on the discharge reporting data submitted since May 1996 and also showed ammonia nitrogen limits to be unnecessary. However, the current permit contains limits for ammonia nitrogen with a final compliance deadline of February 24, 1997. These ammonia limits were derived using an assumed effluent value that has since been proven to be more conservative than is required to protect water quality.

2002 reissuance - 21.0 mg/l; 21.0 mg/l

2007 reissuance - TKN limits protective of ammonia. (no ammonia limits)

TRC

1996 reissuance - NA/NA

The instantaneous maximum TRC concentration in the final effluent (parameter 166) was reduced from 2.0 mg/l (in previous permit) to 1.5 mg/l (in accordance with current permit guidance).

2002 reissuance - 9.4 ug/l; 11.3 ug/l

2007 reissuance - 9.4 ug/l; 11.3 ug/l

DO

1996 reissuance - 6.5 mg/l

2002 reissuance - 6.5 mg/l

2007 reissuance - May-December: 6.5 mg/l
January-April: 7.5 mg/l

Iron, Total Recoverable

1996 reissuance - none

2002 reissuance - 300 ug/l; 300 ug/l Schedule of Compliance date - December 10, 2006.

2007 reissuance - 300 ug/l; 300 ug/l

Total Recoverable Iron limit was retained because backsliding is not allowed as the exceptions in section 402(o)(2) are not applicable to revised regulations.

Parathion

2002 reissuance - 0.065 ug/l; 0.065 ug/l Schedule of Compliance date - December 10, 2006.

2007 reissuance - Parathion limit was removed because new information is available that was not available at the time of the past permit reissuance, which would have justified a less stringent effluent limitation.

Chromium, Hexavalent

1996 reissuance - During the permit term, seven samples were taken for Hexavalent Chromium. The data was evaluated and no limits for Hexavalent Chromium are necessary.

Metals (2002 reissuance)

Based on a review of the data and the use of an appropriate quantification level in the statistical analyses, Total Recoverable Copper, Silver and Zinc Limits were removed from the permit.

THE EFFLUENT LIMITATIONS AND MONITORING RATIONALE ARE BASED ON THE FOLLOWING:

- FLOW** – The design flow of the facility is 0.6 million gallons per day (MGD). Flow monitoring is continuous by totalizing, indicating and recording equipment (in MGD). This monitoring frequency and sample type are in accordance with guidance for this size facility and should be appropriate for assessment of treatment plant capacity.
- pH** – The limits of 6.0 S.U. (minimum) to 9.0 S.U. (maximum) are based on water quality standards and are carried over from the previous permit. This facility discharges to an intermittent stream (zero 7Q10 and 1Q10) so these limits will insure compliance with water quality standards. The monitoring frequency is set at once per day and the sample type is grab (required for pH). This monitoring frequency and sample type are in accordance with guidance for this size facility and should provide enough data for proper assessment of compliance with the effluent limits.
- cBOD₅** – The limits of 8 mg/l (monthly average) and 12 mg/l (weekly average) for the months of May through December were based on a revised water quality model. The weekly average limit of 12 mg/l, which was set at 1.5 times the noted monthly average value, is based on what EPA uses in their guidelines for secondary treatment. The mass limits of 18.2 kg/d (monthly average) and 27.2 kg/d (weekly average), respectively, were calculated based on the design flow of 0.6 MGD.
- The limits of 18 mg/l (monthly average) and 27 mg/l (weekly average) for the months of January through April were based on the same revised water quality model. The weekly average limit of 27 mg/l, which was set at 1.5 times the noted monthly average value, is based on what EPA uses in their guidelines for secondary treatment. The mass limits of 40.8 kg/d (monthly average) and 61.3 kg/d (weekly average), respectively, were calculated based on the design flow of 0.6 MGD.
- For both tiers, the monitoring frequency is three days per week and the sample type is eight-hour composite (based on the design flow). This monitoring frequency and sample type are in accordance with guidance for this size facility and should provide enough data for proper assessment of compliance with the effluent limit and water quality standards.
- TSS** – The limits of 30 mg/l (monthly average) and 45 mg/l (weekly average) are based on technology [secondary treatment limits as per Federal effluent guidelines (40 CFR 133)], are carried over from the previous permit and are protective of water quality. The mass limits of 68.1 kg/d (monthly average) and 102.2 kg/d (weekly average) were calculated based on the design flow of 0.6 MGD. The monitoring frequency is three days a week, and the sample type is eight-hour composite (based on design flow). This is in accordance with guidance for this size facility and should provide enough data for proper assessment of compliance with the effluent limits.
- DO** – The dissolved oxygen limit of 6.5 mg/l (minimum) for the months of May through December and 7.5 mg/l (minimum) for the months of January through April are based on a revised water quality model and are needed to comply with the dissolved oxygen water quality standards. This level of dissolved oxygen is necessary in order to allow the permitted BOD₅ limits. The monitoring frequency is once per day and the sample type is grab (required for dissolved oxygen). This monitoring frequency and sample type are in accordance with guidance for this size facility and should provide enough data for proper assessment of compliance with the effluent limit and water quality standards.
- TRC** – The total residual chlorine limits of 2.38 µg/l (monthly average) and 2.93 µg/l (weekly average) are based on the acute water quality criterion and remain protective of water quality. A review of data indicates that the facility should have no problem meeting the new limits. The monitoring frequency is three times per day at 4-hour intervals and the sample type is grab (required for chlorine). This monitoring frequency and sample type are in accordance with guidance for this size facility and should provide enough data for proper assessment of compliance with the effluent limits and water quality standards.
- TKN** – The limits of 3.0 mg/l (monthly average) and 4.5 mg/l (weekly average) for the months of May through December were based on a revised water quality model. The weekly average limit of 4.5 mg/l, which was set

at 1.5 times the noted monthly average value, is based on what EPA uses in their guidelines for secondary treatment. The mass limits of 6.8 kg/d (monthly average) and 10.2 kg/d (weekly average), respectively, were calculated based on the design flow of 0.6 MGD.

The limits of 12 mg/l (monthly average) and 18 mg/l (weekly average) for the months of January through April were based on the same revised water quality model. The weekly average limit of 18 mg/l, which was set at 1.5 times the noted monthly average value, is based on what EPA uses in their guidelines for secondary treatment. The mass limits of 27.2 kg/d (monthly average) and 40.8 kg/d (weekly average), respectively, were calculated based on the design flow of 0.6 MGD.

For both tiers, the monitoring frequency is three days per week and the sample type is eight-hour composite (based on the design flow). This monitoring frequency and sample type are in accordance with guidance for this size facility and should provide enough data for proper assessment of compliance with the effluent limit and water quality standards.

Ammonia – The ammonia-nitrogen limit was reassessed using the latest ammonia criteria, which resulted in a limit of 6.6 mg/l (monthly average and weekly average) for the months of January through April based on the acute water quality criterion. The new limit is protective of water quality. A four-year schedule has been included in the permit in order to allow the facility time to achieve the more restrictive limits. The monitoring frequency is once per 2 weeks and the sample type is 8-HC (based on flow). This monitoring frequency and sample type are in accordance with guidance for this size facility and should provide enough data for proper assessment of compliance with the effluent limits.

Total Recoverable

Iron – The limits of 300 µg/l (monthly average and weekly average) are based on the human health criterion for water designated as public water supplies, are carried over from the previous permit and remain protective of water quality. The monitoring frequency is once per month and the sample type is grab. This monitoring frequency and sample type are in accordance with guidance for this size facility and should be appropriate for assessment of potential discharge impacts.

Evaluation for Reduced Monitoring Due to Exemplary Facility Operations

In accordance with the VPDES permit manual, facilities having exemplary operations that consistently meet permit requirements are eligible for reduced permit monitoring. With this reissuance, an evaluation was completed to determine if the facility was eligible. Two factors are evaluated for eligibility. The first is “Did the facility receive any form of compliance warning or notice of violation?”; the second is based on effluent quality. During the last permit term, Kenbridge STP received a few Notices of Violation for failure to meet permit limits for monitored parameters. Therefore, they do not meet the initial entrance criteria. All monitoring frequencies have been carried forward with this reissuance.

Date	pH		Temp ° C
	min	max	
Nov '11	ND		15.8
Oct '11	6.6	6.8	
Sep '11	6.6	6.9	27
Aug '11	6.5	7.4	28.8
July '11	ND		28.2
June '11	6.5	6.9	
May '11	6.4	6.9	23.1
Apr '11	6.4	6.9	20.6
Mar '11	ND		18
Feb '11	6.7	6.8	
Jan '11	ND		10.2
Dec '10	6.8	6.8	
Nov '10	6.4	7	14.2
Oct '10	ND		22
Sep '10	6.2	6.5	
Aug '10	ND		29.3
July '10	6.4	6.5	
June '10	6.3	6.4	25.6
May '10	6.1	6.1	22.5
Apr '10	6	6.4	22.8
Mar '10	6	6.6	17
Feb '10	6.4	7.2	8.42
Jan '10	6.9	7.3	7
Dec '09	7	7.3	10.8
Nov '09	7	7.2	16.7
Oct '09	6.8	7.2	20
Sep '09	ND		26.2
Aug '09	6.9	8.1	
July '09	6.8	6.9	26.8
June '09	ND		26.4
May '09	7	7.3	21
Apr '09	6.8	7	19.8
Mar '09	6.8	7	14.8
Feb '09	ND		13.8
Jan '09	ND		
Dec '08	6.8	7	12
Nov '08	ND		
Oct '08	6.8	7.1	22
Sep '08	ND		
Aug '08	6.5	6.8	26
July '08	6.5	7.1	27
June '08	6.8	7.1	25.44
May '08	ND		
Apr '08	6.8	7.3	19.22
Mar '08	6.8	7	17.88
Feb '08	6.8	7.1	18.2
Jan '08	ND		
Dec '07	6.7	7	13
Nov '07	6.4	7	16
Oct '07	ND		
Sep '07	ND		
Aug '07	6.6	6.9	27.88
July '07	6.6	6.7	27
90th	-	7.3	
10th	-	6.5	

27.176 90th percentile, annual
17.976 90th percentile, wet season

FRESHWATER WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Kenbridge STP

Permit No.: VA0026239

Receiving Stream: Seay Creek

Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information

Mean Hardness (as CaCO₃) = 25.2 mg/L
 90% Temperature (Annual) = 22.8 deg C
 90% Temperature (Wet season) = 17.1 deg C
 90% Maximum pH = 7.2 SU
 10% Maximum pH = 6.6 SU
 Tier Designation (1 or 2) = 2
 Public Water Supply (PWS) Y/N? = n
 Trout Present Y/N? = n
 Early Life Stages Present Y/N? = y

Stream Flows

1Q10 (Annual) = 0 MGD
 7Q10 (Annual) = 0 MGD
 30Q10 (Annual) = 0 MGD
 1Q10 (Wet season) = 0 MGD
 30Q10 (Wet season) = 0 MGD
 30Q5 = 0 MGD
 Harmonic Mean = 0 MGD

Mixing Information

Annual - 1Q10 Mix = 100 %
 - 7Q10 Mix = 100 %
 - 30Q10 Mix = 100 %
 Wet Season - 1Q10 Mix = 100 %
 - 30Q10 Mix = 100 %

Effluent Information

Mean Hardness (as CaCO₃) = 37 mg/L
 90% Temp (Annual) = 27.2 deg C
 90% Temp (Wet season) = 18 deg C
 90% Maximum pH = 7.3 SU
 10% Maximum pH = 6.5 SU
 Discharge Flow = 0.6 MGD

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenaphthene	5	--	--	na	9.9E+02	--	--	na	9.9E+02	--	--	na	1.0E+02	--	--	na	1.0E+02	--	--	na	1.0E+02
Acrolein	0	--	--	na	9.3E+00	--	--	na	9.3E+00	--	--	na	9.3E-01	--	--	na	9.3E-01	--	--	na	9.3E-01
Acrylonitrile ^C	0	--	--	na	2.5E+00	--	--	na	2.5E+00	--	--	na	2.5E-01	--	--	na	2.5E-01	--	--	na	2.5E-01
Aldrin ^C	0	3.0E+00	--	na	5.0E-04	3.0E+00	--	na	5.0E-04	7.5E-01	--	na	5.0E-05	7.5E-01	--	na	5.0E-05	7.5E-01	--	na	5.0E-05
Ammonia-N (mg/l) (Yearly)	0	2.62E+01	2.24E+00	na	--	2.62E+01	2.24E+00	na	--	6.55E+00	5.60E-01	na	--	6.55E+00	5.60E-01	na	--	6.55E+00	5.60E-01	na	--
Ammonia-N (mg/l) (High Flow)	0	2.62E+01	4.06E+00	na	--	2.62E+01	4.06E+00	na	--	6.55E+00	1.01E+00	na	--	6.55E+00	1.01E+00	na	--	6.55E+00	1.01E+00	na	--
Anthracene	0	--	--	na	4.0E+04	--	--	na	4.0E+04	--	--	na	4.0E+03	--	--	na	4.0E+03	--	--	na	4.0E+03
Antimony	0	--	--	na	6.4E+02	--	--	na	6.4E+02	--	--	na	6.4E+01	--	--	na	6.4E+01	--	--	na	6.4E+01
Arsenic	0	3.4E+02	1.5E+02	na	--	3.4E+02	1.5E+02	na	--	8.5E+01	3.8E+01	na	--	8.5E+01	3.8E+01	na	--	8.5E+01	3.8E+01	na	--
Barium	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Benzene ^C	0	--	--	na	5.1E+02	--	--	na	5.1E+02	--	--	na	5.1E+01	--	--	na	5.1E+01	--	--	na	5.1E+01
Benzidine ^C	0	--	--	na	2.0E-03	--	--	na	2.0E-03	--	--	na	2.0E-04	--	--	na	2.0E-04	--	--	na	2.0E-04
Benzo (a) anthracene ^C	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	na	1.8E-02	--	--	na	1.8E-02	--	--	na	1.8E-02
Benzo (b) fluoranthene ^C	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	na	1.8E-02	--	--	na	1.8E-02	--	--	na	1.8E-02
Benzo (k) fluoranthene ^C	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	na	1.8E-02	--	--	na	1.8E-02	--	--	na	1.8E-02
Benzo (a) pyrene ^C	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	na	1.8E-02	--	--	na	1.8E-02	--	--	na	1.8E-02
Bis(2-Chloroethyl) Ether ^C	0	--	--	na	5.3E+00	--	--	na	5.3E+00	--	--	na	5.3E-01	--	--	na	5.3E-01	--	--	na	5.3E-01
Bis(2-Chloroisopropyl) Ether ^C	0	--	--	na	6.5E+04	--	--	na	6.5E+04	--	--	na	6.5E+03	--	--	na	6.5E+03	--	--	na	6.5E+03
Bis 2-Ethylhexyl Phthalate ^C	0	--	--	na	2.2E+01	--	--	na	2.2E+01	--	--	na	2.2E+00	--	--	na	2.2E+00	--	--	na	2.2E+00
Bromoform ^C	0	--	--	na	1.4E+03	--	--	na	1.4E+03	--	--	na	1.4E+02	--	--	na	1.4E+02	--	--	na	1.4E+02
Butylbenzylphthalate	0	--	--	na	1.9E+03	--	--	na	1.9E+03	--	--	na	1.9E+02	--	--	na	1.9E+02	--	--	na	1.9E+02
Cadmium	0	1.3E+00	5.2E-01	na	--	1.3E+00	5.2E-01	na	--	3.2E-01	1.3E-01	na	--	3.2E-01	1.3E-01	na	--	3.2E-01	1.3E-01	na	--
Carbon Tetrachloride ^C	0	--	--	na	1.6E+01	--	--	na	1.6E+01	--	--	na	1.6E+00	--	--	na	1.6E+00	--	--	na	1.6E+00
Chlordane ^C	0	2.4E+00	4.3E-03	na	8.1E-03	2.4E+00	4.3E-03	na	8.1E-03	6.0E-01	1.1E-03	na	8.1E-04	6.0E-01	1.1E-03	na	8.1E-04	6.0E-01	1.1E-03	na	8.1E-04
Chloride	0	8.6E+05	2.3E+05	na	--	8.6E+05	2.3E+05	na	--	2.2E+05	5.8E+04	na	--	2.2E+05	5.8E+04	na	--	2.2E+05	5.8E+04	na	--
TRC	0	1.9E+01	1.1E+01	na	--	1.9E+01	1.1E+01	na	--	4.8E+00	2.8E+00	na	--	4.8E+00	2.8E+00	na	--	4.8E+00	2.8E+00	na	--
Chlorobenzene	0	--	--	na	1.6E+03	--	--	na	1.6E+03	--	--	na	1.6E+02	--	--	na	1.6E+02	--	--	na	1.6E+02

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane ^c	0	--	--	na	1.3E+02	--	--	na	1.3E+02	--	--	na	1.3E+01	--	--	na	1.3E+01	--	--	na	1.3E+01
Chloroform	0	--	--	na	1.1E+04	--	--	na	1.1E+04	--	--	na	1.1E+03	--	--	na	1.1E+03	--	--	na	1.1E+03
2-Chloronaphthalene	0	--	--	na	1.6E+03	--	--	na	1.6E+03	--	--	na	1.6E+02	--	--	na	1.6E+02	--	--	na	1.6E+02
2-Chlorophenol	0	--	--	na	1.5E+02	--	--	na	1.5E+02	--	--	na	1.5E+01	--	--	na	1.5E+01	--	--	na	1.5E+01
Chlorpyrifos	0	8.3E-02	4.1E-02	na	--	8.3E-02	4.1E-02	na	--	2.1E-02	1.0E-02	na	--	2.1E-02	1.0E-02	na	--	2.1E-02	1.0E-02	na	--
Chromium III	0	2.5E+02	3.3E+01	na	--	2.5E+02	3.3E+01	na	--	6.3E+01	8.2E+00	na	--	6.3E+01	8.2E+00	na	--	6.3E+01	8.2E+00	na	--
Chromium VI	0	1.6E+01	1.1E+01	na	--	1.6E+01	1.1E+01	na	--	4.0E+00	2.8E+00	na	--	4.0E+00	2.8E+00	na	--	4.0E+00	2.8E+00	na	--
Chromium, Total	0	--	--	1.0E+02	--	--	--	na	--	--	--	1.0E+01	--	--	--	1.0E+01	--	--	--	na	--
Chrysene ^c	0	--	--	na	1.8E-02	--	--	na	1.8E-02	--	--	na	1.8E-03	--	--	na	1.8E-03	--	--	na	1.8E-03
Copper	0	5.3E+00	3.8E+00	na	--	5.3E+00	3.8E+00	na	--	1.3E+00	9.6E-01	na	--	1.3E+00	9.6E-01	na	--	1.3E+00	9.6E-01	na	--
Cyanide, Free	0	2.2E+01	5.2E+00	na	1.6E+04	2.2E+01	5.2E+00	na	1.6E+04	5.5E+00	1.3E+00	na	1.6E+03	5.5E+00	1.3E+00	na	1.6E+03	5.5E+00	1.3E+00	na	1.6E+03
DDD ^c	0	--	--	na	3.1E-03	--	--	na	3.1E-03	--	--	na	3.1E-04	--	--	na	3.1E-04	--	--	na	3.1E-04
DDE ^c	0	--	--	na	2.2E-03	--	--	na	2.2E-03	--	--	na	2.2E-04	--	--	na	2.2E-04	--	--	na	2.2E-04
DDT ^c	0	1.1E+00	1.0E-03	na	2.2E-03	1.1E+00	1.0E-03	na	2.2E-03	2.8E-01	2.5E-04	na	2.2E-04	2.8E-01	2.5E-04	na	2.2E-04	2.8E-01	2.5E-04	na	2.2E-04
Demeton	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	2.5E-02	na	--	--	2.5E-02	na	--	--	2.5E-02	na	--
Diazinon	0	1.7E-01	1.7E-01	na	--	1.7E-01	1.7E-01	na	--	4.3E-02	4.3E-02	na	--	4.3E-02	4.3E-02	na	--	4.3E-02	4.3E-02	na	--
Dibenz(a,h)anthracene ^c	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	na	1.8E-02	--	--	na	1.8E-02	--	--	na	1.8E-02
1,2-Dichlorobenzene	0	--	--	na	1.3E+03	--	--	na	1.3E+03	--	--	na	1.3E+02	--	--	na	1.3E+02	--	--	na	1.3E+02
1,3-Dichlorobenzene	0	--	--	na	9.6E+02	--	--	na	9.6E+02	--	--	na	9.6E+01	--	--	na	9.6E+01	--	--	na	9.6E+01
1,4-Dichlorobenzene	0	--	--	na	1.9E+02	--	--	na	1.9E+02	--	--	na	1.9E+01	--	--	na	1.9E+01	--	--	na	1.9E+01
3,3-Dichlorobenzidine ^c	0	--	--	na	2.8E-01	--	--	na	2.8E-01	--	--	na	2.8E-02	--	--	na	2.8E-02	--	--	na	2.8E-02
Dichlorobromomethane ^c	0	--	--	na	1.7E+02	--	--	na	1.7E+02	--	--	na	1.7E+01	--	--	na	1.7E+01	--	--	na	1.7E+01
1,2-Dichloroethane ^c	0	--	--	na	3.7E+02	--	--	na	3.7E+02	--	--	na	3.7E+01	--	--	na	3.7E+01	--	--	na	3.7E+01
1,1-Dichloroethylene	0	--	--	na	7.1E+03	--	--	na	7.1E+03	--	--	na	7.1E+02	--	--	na	7.1E+02	--	--	na	7.1E+02
1,2-trans-dichloroethylene	0	--	--	na	1.0E+04	--	--	na	1.0E+04	--	--	na	1.0E+03	--	--	na	1.0E+03	--	--	na	1.0E+03
2,4-Dichlorophenol	0	--	--	na	2.9E+02	--	--	na	2.9E+02	--	--	na	2.9E+01	--	--	na	2.9E+01	--	--	na	2.9E+01
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
1,2-Dichloropropane ^c	0	--	--	na	1.5E+02	--	--	na	1.5E+02	--	--	na	1.5E+01	--	--	na	1.5E+01	--	--	na	1.5E+01
1,3-Dichloropropene ^c	0	--	--	na	2.1E+02	--	--	na	2.1E+02	--	--	na	2.1E+01	--	--	na	2.1E+01	--	--	na	2.1E+01
Dieldrin ^c	0	2.4E-01	5.6E-02	na	5.4E-04	2.4E-01	5.6E-02	na	5.4E-04	6.0E-02	1.4E-02	na	5.4E-05	6.0E-02	1.4E-02	na	5.4E-05	6.0E-02	1.4E-02	na	5.4E-05
Diethyl Phthalate	0	--	--	na	4.4E+04	--	--	na	4.4E+04	--	--	na	4.4E+03	--	--	na	4.4E+03	--	--	na	4.4E+03
2,4-Dimethylphenol	0	--	--	na	8.5E+02	--	--	na	8.5E+02	--	--	na	8.5E+01	--	--	na	8.5E+01	--	--	na	8.5E+01
Dimethyl Phthalate	0	--	--	na	1.1E+06	--	--	na	1.1E+06	--	--	na	1.1E+05	--	--	na	1.1E+05	--	--	na	1.1E+05
Di-n-Butyl Phthalate	0	--	--	na	4.5E+03	--	--	na	4.5E+03	--	--	na	4.5E+02	--	--	na	4.5E+02	--	--	na	4.5E+02
2,4-Dinitrophenol	0	--	--	na	5.3E+03	--	--	na	5.3E+03	--	--	na	5.3E+02	--	--	na	5.3E+02	--	--	na	5.3E+02
2-Methyl-4,6-Dinitrophenol	0	--	--	na	2.8E+02	--	--	na	2.8E+02	--	--	na	2.8E+01	--	--	na	2.8E+01	--	--	na	2.8E+01
2,4-Dinitrotoluene ^c	0	--	--	na	3.4E+01	--	--	na	3.4E+01	--	--	na	3.4E+00	--	--	na	3.4E+00	--	--	na	3.4E+00
Dioxin 2,3,7,8- tetrachlorodibenzo-p-dioxin	0	--	--	na	5.1E-08	--	--	na	5.1E-08	--	--	na	5.1E-09	--	--	na	5.1E-09	--	--	na	5.1E-09
1,2-Diphenylhydrazine ^c	0	--	--	na	2.0E+00	--	--	na	2.0E+00	--	--	na	2.0E-01	--	--	na	2.0E-01	--	--	na	2.0E-01
Alpha-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	2.2E-01	5.6E-02	na	8.9E+01	5.5E-02	1.4E-02	na	8.9E+00	5.5E-02	1.4E-02	na	8.9E+00	5.5E-02	1.4E-02	na	8.9E+00
Beta-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	2.2E-01	5.6E-02	na	8.9E+01	5.5E-02	1.4E-02	na	8.9E+00	5.5E-02	1.4E-02	na	8.9E+00	5.5E-02	1.4E-02	na	8.9E+00
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	2.2E-01	5.6E-02	--	--	5.5E-02	1.4E-02	--	--	5.5E-02	1.4E-02	--	--	5.5E-02	1.4E-02	--	--
Endosulfan Sulfate	0	--	--	na	8.9E+01	--	--	na	8.9E+01	--	--	na	8.9E+00	--	--	na	8.9E+00	--	--	na	8.9E+00
Endrin	0	8.6E-02	3.6E-02	na	6.0E-02	8.6E-02	3.6E-02	na	6.0E-02	2.2E-02	9.0E-03	na	6.0E-03	2.2E-02	9.0E-03	na	6.0E-03	2.2E-02	9.0E-03	na	6.0E-03
Endrin Aldehyde	0	--	--	na	3.0E-01	--	--	na	3.0E-01	--	--	na	3.0E-02	--	--	na	3.0E-02	--	--	na	3.0E-02

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	na	2.1E+03	--	--	na	2.1E+03	--	--	na	2.1E+02	--	--	na	2.1E+02	--	--	na	2.1E+02
Fluoranthene	0	--	--	na	1.4E+02	--	--	na	1.4E+02	--	--	na	1.4E+01	--	--	na	1.4E+01	--	--	na	1.4E+01
Fluorene	0	--	--	na	5.3E+03	--	--	na	5.3E+03	--	--	na	5.3E+02	--	--	na	5.3E+02	--	--	na	5.3E+02
Foaming Agents	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Guthion	0	--	1.0E-02	na	--	--	1.0E-02	na	--	--	2.5E-03	na	--	--	2.5E-03	na	--	--	2.5E-03	na	--
Heptachlor ^c	0	5.2E-01	3.8E-03	na	7.9E-04	5.2E-01	3.8E-03	na	7.9E-04	1.3E-01	9.5E-04	na	7.9E-05	1.3E-01	9.5E-04	na	7.9E-05	1.3E-01	9.5E-04	na	7.9E-05
Heptachlor Epoxide ^c	0	5.2E-01	3.8E-03	na	3.9E-04	5.2E-01	3.8E-03	na	3.9E-04	1.3E-01	9.5E-04	na	3.9E-05	1.3E-01	9.5E-04	na	3.9E-05	1.3E-01	9.5E-04	na	3.9E-05
Hexachlorobenzene ^c	0	--	--	na	2.9E-03	--	--	na	2.9E-03	--	--	na	2.9E-04	--	--	na	2.9E-04	--	--	na	2.9E-04
Hexachlorobutadiene ^c	0	--	--	na	1.8E+02	--	--	na	1.8E+02	--	--	na	1.8E+01	--	--	na	1.8E+01	--	--	na	1.8E+01
Hexachlorocyclohexane																					
Alpha-BHC ^c	0	--	--	na	4.9E-02	--	--	na	4.9E-02	--	--	na	4.9E-03	--	--	na	4.9E-03	--	--	na	4.9E-03
Hexachlorocyclohexane																					
Beta-BHC ^c	0	--	--	na	1.7E-01	--	--	na	1.7E-01	--	--	na	1.7E-02	--	--	na	1.7E-02	--	--	na	1.7E-02
Hexachlorocyclohexane																					
Gamma-BHC ^c (Lindane)	0	9.5E-01	na	na	1.8E+00	9.5E-01	--	na	1.8E+00	2.4E-01	--	na	1.8E-01	2.4E-01	--	na	1.8E-01	2.4E-01	--	na	1.8E-01
Hexachlorocyclopentadiene	0	--	--	na	1.1E+03	--	--	na	1.1E+03	--	--	na	1.1E+02	--	--	na	1.1E+02	--	--	na	1.1E+02
Hexachloroethane ^c	0	--	--	na	3.3E+01	--	--	na	3.3E+01	--	--	na	3.3E+00	--	--	na	3.3E+00	--	--	na	3.3E+00
Hydrogen Sulfide	0	--	2.0E+00	na	--	--	2.0E+00	na	--	--	5.0E-01	na	--	--	5.0E-01	na	--	--	5.0E-01	na	--
Indeno (1,2,3-cd) pyrene ^c	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	na	1.8E-02	--	--	na	1.8E-02	--	--	na	1.8E-02
Iron	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Isophorone ^c	0	--	--	na	9.6E+03	--	--	na	9.6E+03	--	--	na	9.6E+02	--	--	na	9.6E+02	--	--	na	9.6E+02
Kepon ^e	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	0.0E+00	na	--	--	0.0E+00	na	--	--	0.0E+00	na	--
Lead	0	3.4E+01	3.8E+00	na	--	3.4E+01	3.8E+00	na	--	8.4E+00	9.5E-01	na	--	8.4E+00	9.5E-01	na	--	8.4E+00	9.5E-01	na	--
Malathion	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	2.5E-02	na	--	--	2.5E-02	na	--	--	2.5E-02	na	--
Manganese	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Mercury	0	1.4E+00	7.7E-01	--	--	1.4E+00	7.7E-01	--	--	3.5E-01	1.9E-01	--	--	3.5E-01	1.9E-01	--	--	3.5E-01	1.9E-01	--	--
Methyl Bromide	0	--	--	na	1.5E+03	--	--	na	1.5E+03	--	--	na	1.5E+02	--	--	na	1.5E+02	--	--	na	1.5E+02
Methylene Chloride ^c	0	--	--	na	5.9E+03	--	--	na	5.9E+03	--	--	na	5.9E+02	--	--	na	5.9E+02	--	--	na	5.9E+02
Methoxychlor	0	--	3.0E-02	na	--	--	3.0E-02	na	--	--	7.5E-03	na	--	--	7.5E-03	na	--	--	7.5E-03	na	--
Mirex	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	0.0E+00	na	--	--	0.0E+00	na	--	--	0.0E+00	na	--
Nickel	0	7.9E+01	8.7E+00	na	4.6E+03	7.9E+01	8.7E+00	na	4.6E+03	2.0E+01	2.2E+00	na	4.6E+02	2.0E+01	2.2E+00	na	4.6E+02	2.0E+01	2.2E+00	na	4.6E+02
Nitrate (as N)	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Nitrobenzene	0	--	--	na	6.9E+02	--	--	na	6.9E+02	--	--	na	6.9E+01	--	--	na	6.9E+01	--	--	na	6.9E+01
N-Nitrosodimethylamine ^c	0	--	--	na	3.0E+01	--	--	na	3.0E+01	--	--	na	3.0E+00	--	--	na	3.0E+00	--	--	na	3.0E+00
N-Nitrosodiphenylamine ^c	0	--	--	na	6.0E+01	--	--	na	6.0E+01	--	--	na	6.0E+00	--	--	na	6.0E+00	--	--	na	6.0E+00
N-Nitrosodi-n-propylamine ^c	0	--	--	na	5.1E+00	--	--	na	5.1E+00	--	--	na	5.1E-01	--	--	na	5.1E-01	--	--	na	5.1E-01
Nonylphenol	0	2.8E+01	6.6E+00	--	--	2.8E+01	6.6E+00	na	--	7.0E+00	1.7E+00	--	--	7.0E+00	1.7E+00	--	--	7.0E+00	1.7E+00	na	--
Parathion	0	6.5E-02	1.3E-02	na	--	6.5E-02	1.3E-02	na	--	1.6E-02	3.3E-03	na	--	1.6E-02	3.3E-03	na	--	1.6E-02	3.3E-03	na	--
PCB Total ^c	0	--	1.4E-02	na	6.4E-04	--	1.4E-02	na	6.4E-04	--	3.5E-03	na	6.4E-05	--	3.5E-03	na	6.4E-05	--	3.5E-03	na	6.4E-05
Pentachlorophenol ^c	0	5.3E+00	4.0E+00	na	3.0E+01	5.3E+00	4.0E+00	na	3.0E+01	1.3E+00	1.0E+00	na	3.0E+00	1.3E+00	1.0E+00	na	3.0E+00	1.3E+00	1.0E+00	na	3.0E+00
Phenol	0	--	--	na	8.6E+05	--	--	na	8.6E+05	--	--	na	8.6E+04	--	--	na	8.6E+04	--	--	na	8.6E+04
Pyrene	0	--	--	na	4.0E+03	--	--	na	4.0E+03	--	--	na	4.0E+02	--	--	na	4.0E+02	--	--	na	4.0E+02
Radionuclides																					
Gross Alpha Activity (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Beta and Photon Activity (mrem/yr)	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Radium 226 + 228 (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Uranium (ug/l)	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	na	4.2E+03	2.0E+01	5.0E+00	na	4.2E+03	5.0E+00	1.3E+00	na	4.2E+02	5.0E+00	1.3E+00	na	4.2E+02	5.0E+00	1.3E+00	na	4.2E+02
Silver	0	6.2E-01	--	na	--	6.2E-01	--	na	--	1.6E-01	--	na	--	1.6E-01	--	na	--	1.6E-01	--	na	--
Sulfate	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
1,1,2,2-Tetrachloroethane ^C	0	--	--	na	4.0E+01	--	--	na	4.0E+01	--	--	na	4.0E+00	--	--	na	4.0E+00	--	--	na	4.0E+00
Tetrachloroethylene ^C	0	--	--	na	3.3E+01	--	--	na	3.3E+01	--	--	na	3.3E+00	--	--	na	3.3E+00	--	--	na	3.3E+00
Thallium	0	--	--	na	4.7E-01	--	--	na	4.7E-01	--	--	na	4.7E-02	--	--	na	4.7E-02	--	--	na	4.7E-02
Toluene	0	--	--	na	6.0E+03	--	--	na	6.0E+03	--	--	na	6.0E+02	--	--	na	6.0E+02	--	--	na	6.0E+02
Total dissolved solids	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Toxaphene ^C	0	7.3E-01	2.0E-04	na	2.8E-03	7.3E-01	2.0E-04	na	2.8E-03	1.8E-01	5.0E-05	na	2.8E-04	1.8E-01	5.0E-05	na	2.8E-04	1.8E-01	5.0E-05	na	2.8E-04
Tributyltin	0	4.6E-01	7.2E-02	na	--	4.6E-01	7.2E-02	na	--	1.2E-01	1.8E-02	na	--	1.2E-01	1.8E-02	na	--	1.2E-01	1.8E-02	na	--
1,2,4-Trichlorobenzene	0	--	--	na	7.0E+01	--	--	na	7.0E+01	--	--	na	7.0E+00	--	--	na	7.0E+00	--	--	na	7.0E+00
1,1,2-Trichloroethane ^C	0	--	--	na	1.6E+02	--	--	na	1.6E+02	--	--	na	1.6E+01	--	--	na	1.6E+01	--	--	na	1.6E+01
Trichloroethylene ^C	0	--	--	na	3.0E+02	--	--	na	3.0E+02	--	--	na	3.0E+01	--	--	na	3.0E+01	--	--	na	3.0E+01
2,4,6-Trichlorophenol ^C	0	--	--	na	2.4E+01	--	--	na	2.4E+01	--	--	na	2.4E+00	--	--	na	2.4E+00	--	--	na	2.4E+00
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Vinyl Chloride ^C	0	--	--	na	2.4E+01	--	--	na	2.4E+01	--	--	na	2.4E+00	--	--	na	2.4E+00	--	--	na	2.4E+00
Zinc	0	5.0E+01	5.1E+01	na	2.6E+04	5.0E+01	5.1E+01	na	2.6E+04	1.3E+01	1.3E+01	na	2.6E+03	1.3E+01	1.3E+01	na	2.6E+03	1.3E+01	1.3E+01	na	2.6E+03

Notes:

- All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
- Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
- Metals measured as Dissolved, unless specified otherwise
- "C" indicates a carcinogenic parameter
- Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.
Antidegradation WLAs are based upon a complete mix.
- Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
= (0.1(WQC - background conc.) + background conc.) for human health
- WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and
Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	6.4E+01
Arsenic	2.3E+01
Barium	na
Cadmium	7.8E-02
Chromium III	4.9E+00
Chromium VI	1.6E+00
Copper	5.3E-01
Iron	na
Lead	5.7E-01
Manganese	na
Mercury	1.2E-01
Nickel	1.3E+00
Selenium	7.5E-01
Silver	6.2E-02
Zinc	5.0E+00

Note: do not use QL's lower than the minimum QL's provided in agency guidance

4/3/2012 10:41:00 AM

Facility = Kenbridge STP
Chemical = ammonia
Chronic averaging period = 30
WLAa = 6.55
WLAc =
Q.L. = 0.2
samples/mo. = 2
samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 9
Variance = 29.16
C.V. = 0.6
97th percentile daily values = 21.9007
97th percentile 4 day average = 14.9741
97th percentile 30 day average = 10.8544
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity
Maximum Daily Limit = 6.55
Average Weekly limit = 6.55
Average Monthly Limit = 5.32635512416667

The data are:

4/2/2012 1:52:04 PM

Facility = Kenbridge STP
Chemical = chlorine
Chronic averaging period = 4
WLAa = 4.8
WLAc =
Q.L. = 100
samples/mo. = 30
samples/wk. = 7

Summary of Statistics:

observations = 1
Expected Value = 1000
Variance = 360000
C.V. = 0.6
97th percentile daily values = 2433.41
97th percentile 4 day average = 1663.79
97th percentile 30 day average = 1206.05
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity
Maximum Daily Limit = 4.8
Average Weekly limit = 2.93139459240974
Average Monthly Limit = 2.37898158656486

The data are:

1000

Kenbridge WWTP VA0026239

February 1, 2009 - November 30, 2011

Outfall No 001

Frequency of Analysis: 1/M

Sample Type Lim GRAB

Sample Frequency Lim 1/M

Parameter Code 361

Parameter Description IRON, TOTAL RECOVERABLE

Due Date	Lim-Avg	Concentration Average	Lim-Max	Concentration Maximum
10-Mar-09	300	450	300	450
10-Apr-09	300	356	300	356
10-May-09	300	627	300	627
10-Jun-09	300	NULL	300	NULL
10-Jul-09	300	1230	300	1230
10-Aug-09	300	450	300	450
10-Sep-09	300	0	300	0
10-Oct-09	300	191	300	191
10-Nov-09	300	170	300	170
10-Dec-09	300	177	300	177
10-Jan-10	300	286	300	286
10-Feb-10	300	541	300	541
10-Mar-10	300	387	300	387
10-Apr-10	300	319	300	319
10-May-10	300	351	300	351
10-Jun-10	300	333	300	333
10-Jul-10	300	614	300	614
10-Sep-10	300	590	300	590
10-Oct-10	300	NR	300	NR
10-Nov-10	300	227	300	227
10-Dec-10	300	308	300	308
10-Jan-11	300	NULL	300	NULL
10-Feb-11	NULL	NULL	602	417
10-Mar-11	NULL	NULL	602	NR
10-Apr-11	NULL	NULL	602	362
10-May-11	NULL	NULL	602	207
10-Jun-11	NULL	NULL	602	131
10-Jul-11	NULL	NULL	602	NR
10-Aug-11	NULL	NULL	602	189
10-Sep-11	NULL	NULL	602	301
10-Oct-11	NULL	NULL	602	206
10-Nov-11	NULL	NULL	602	NR

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY South Central Water Regional Office

7705 Timberlake Road, Lynchburg, VA, 24502

434/582-5120

SUBJECT: Stream Sanitation Analysis – Seay Creek in Lunenburg County
Expansion of Permitted Discharge for Kenbridge STP (VA0026239)

TO: Kevin Crider

FROM: April Grippo *ag*

VIA: Kyle Winter *W*

DATE: January 16, 2002

COPIES: Bob Goode, VA0026239 Model File

A request for a stream sanitation analysis for Kenbridge STP was originally received on September 12, 2001. The discharge is currently permitted (VA0026239), but the stream sanitation request was submitted because the permittee proposes to modify the design flow from 0.3 MGD to 0.6 MGD or 0.9 MGD. The discharge is to Seay Creek, a tributary to Crooked Creek, which drains to the Chowan River Subbasin. Seay Creek is in watershed K16. A flow frequency request was submitted to Paul Herman on October 5, 2001 and again on October 22, 2001. This information was received from Paul in a memorandum dated October 23, 2001.

Site visits were performed on September 7, 2001 and again on September 21, 2001. The latter visit was after a 2 week period of no discharge from the plant and allowed observation of close to 7Q10 conditions. The model worksheets were completed using information obtained during the site visit and DMRs.

Tiering is based on flow, and temperature data from a similar stream were used to calibrate the winter model.

The receiving stream is not considered a Tier II water and therefore is not subject to antidegradation requirements.

Model Approach

The receiving stream was modeled using DEQ's Regional 4.0 model. The high flow months, based on Paul Herman's memo, are January – April.

Results

	Summer Tier (May – December)	Winter Tier (January-April)
Flow (mgd):	0.6	0.6
cBOD ₅ (mg/l):	8.0	18.0
TKN (mg/l):	3.0	12.0
DO (mg/l):	6.5	7.5
Flow (mgd):	0.9	0.9
cBOD ₅ (mg/l):	11.0	17.0
TKN (mg/l):	3.0	12.0
DO (mg/l):	6.5	7.5

Depending on ammonia limitations, the winter TKN limit may not be more restrictive. Ammonia calculations performed by the permit writer have shown that ammonia limits should be more restrictive in the winter tier.

Model documentation is attached. If you have any questions or require additional information, please do not hesitate to contact me.

*never used
for reissuance
03/07/02*

REGIONAL MODELING SYSTEM VERSION 4.0
Model Input File for the Discharge
to SEAY CREEK.

Segment Information for Segment 1

Definition Information

Segment Definition:	A discharge enters.
Discharge Name:	KENBRIDGE STP
VPDES Permit No.:	VA0026239

Discharger Flow Information

Flow:	0.6 MGD
cBOD5:	8 mg/l
TKN:	3 mg/l
D.O.:	6.5 mg/l
Temperature:	27 Degrees C

Geographic Information

Segment Length:	0.425 miles
Upstream Drainage Area:	0.42 Sq.Mi.
Downstream Drainage Area:	0.93 Sq.Mi.
Upstream Elevation:	405 Ft.
Downstream Elevation:	380 Ft.

Hydraulic Information

Segment Width:	1.41 Ft.
Segment Depth:	0.335 Ft.
Segment Velocity:	1.972 Ft./Sec.
Segment Flow:	0.602 MGD
Incremental Flow:	0.002 MGD (Applied at end of segment.)

Channel Information

Cross Section:	Irregular
Character:	Moderately Meandering
Pool and Riffle:	Yes
Percent Pools:	10
Percent Riffles:	90
Pool Depth:	1.1 Ft.
Riffle Depth:	0.23 Ft.
Bottom Type:	Sand
Sludge:	Light
Plants:	Few
Algae:	Only On Edges

REGIONAL MODELING SYSTEM VERSION 4.0
Model Input File for the Discharge
to SEAY CREEK.

Segment Information for Segment 2

Definition Information

Segment Definition: A significant change occurs.

Geographic Information

Segment Length: 2.405 miles
Upstream Drainage Area: 0.93 Sq.Mi.
Downstream Drainage Area: 3.49 Sq.Mi.
Upstream Elevation: 380 Ft.
Downstream Elevation: 340 Ft.

Hydraulic Information

Segment Width: 1.5 Ft.
Segment Depth: 0.331 Ft.
Segment Velocity: 1.214 Ft./Sec.
Segment Flow: 0.602 MGD
Incremental Flow: 0.01 MGD (Applied at end of segment.)

Channel Information

Cross Section: Irregular
Character: Moderately Meandering
Pool and Riffle: No
Bottom Type: Silt
Sludge: Trace
Plants: Few
Algae: Only On Edges

REGIONAL MODELING SYSTEM VERSION 4.0
Model Input File for the Discharge
to SEAY CREEK.

Segment Information for Segment 3

Definition Information

Segment Definition: A tributary enters.
Tributary Name: SEAY CREEK/U.T.

Tributary Flow Information

Flow: 0 MGD
cBOD5: 2 mg/l
TKN: 0 mg/l
D.O.: 7.668 mg/l
Temperature: 23 Degrees C

Geographic Information

Segment Length: 1.17 miles
Upstream Drainage Area: 3.49 Sq.Mi.
Downstream Drainage Area: 5.07 Sq.Mi.
Upstream Elevation: 340 Ft.
Downstream Elevation: 315 Ft.

Hydraulic Information

Segment Width: 1.5 Ft.
Segment Depth: 0.299 Ft.
Segment Velocity: 1.376 Ft./Sec.
Segment Flow: 0.602 MGD
Incremental Flow: 0.006 MGD (Applied at end of segment.)

Channel Information

Cross Section: Irregular
Character: Moderately Meandering
Pool and Riffle: No
Bottom Type: Silt
Sludge: None
Plants: None
Algae: None

REGIONAL MODELING SYSTEM VERSION 4.0
Model Input File for the Discharge
to SEAY CREEK.

Segment Information for Segment 4

Definition Information

Segment Definition: A significant change occurs.

Geographic Information

Segment Length: 2.06 miles
Upstream Drainage Area: 5.07 Sq.Mi.
Downstream Drainage Area: 7.02 Sq.Mi.
Upstream Elevation: 315 Ft.
Downstream Elevation: 270 Ft.

Hydraulic Information

Segment Width: 1 Ft.
Segment Depth: 0.447 Ft.
Segment Velocity: 1.365 Ft./Sec.
Segment Flow: 0.602 MGD
Incremental Flow: 0.008 MGD (Applied at end of segment.)

Channel Information

Cross Section: Irregular
Character: Moderately Meandering
Pool and Riffle: No
Bottom Type: Sand
Sludge: None
Plants: None
Algae: None

REGIONAL MODELING SYSTEM VERSION 4.0
Model Input File for the Discharge
to SEAY CREEK.

Segment Information for Segment 5

Definition Information

Segment Definition: A significant change occurs.

Geographic Information

Segment Length: 0.64 miles
Upstream Drainage Area: 7.02 Sq.Mi.
Downstream Drainage Area: 7.32 Sq.Mi.
Upstream Elevation: 270 Ft.
Downstream Elevation: 255 Ft.

Hydraulic Information

Segment Width: 0.999 Ft.
Segment Depth: 0.432 Ft.
Segment Velocity: 1.414 Ft./Sec.
Segment Flow: 0.602 MGD
Incremental Flow: 0.001 MGD (Applied at end of segment.)

Channel Information

Cross Section: Irregular
Character: Moderately Meandering
Pool and Riffle: No
Bottom Type: Sand
Sludge: None
Plants: None
Algae: None

modout.txt

"Model Run For E:\26239600Ks.mod On 1/15/02 5:03:59 PM"

"Model is for SEAY CREEK."

"Model starts at the KENBRIDGE STP discharge."

"Background Data"

"Flow"	"cBOD5"	"TKN"	"DO"	"Temp"
"(mgd)"	"(mg/l)"	"(mg/l)"	"(mg/l)"	"deg C"
.0017,	2,	0,	7.647,	23

"Discharge/Tributary Input Data for Segment 1"

"Flow"	"cBOD5"	"TKN"	"DO"	"Temp"
"(mgd)"	"(mg/l)"	"(mg/l)"	"(mg/l)"	"deg C"
.6,	8,	3,	6.5,	27

"Hydraulic Information for Segment 1"

"Length"	"Width"	"Depth"	"Velocity"
"(mi)"	"(ft)"	"(ft)"	"(ft/sec)"
.425,	1.41,	.335,	1.972

"Initial Mix Values for Segment 1"

"Flow"	"DO"	"cBOD"	"nBOD"	"DOSat"	"Temp"
"(mgd)"	"(mg/l)"	"(mg/l)"	"(mg/l)"	"(mg/l)"	"deg C"
.6017,	6.503,	19.958,	0,	7.966,	26.98885

"Rate Constants for Segment 1. - (All units Per Day)"

"k1"	"k1@T"	"k2"	"k2@T"	"kn"	"kn@T"	"BD"	"BD@T"
1.5,	2.068,	20,	23.606,	.45,	.771,	.9793552,	1.677

"Output for Segment 1"

"Segment starts at KENBRIDGE STP"

"Total", "Segm."

"Dist."	"Dist."	"DO"	"cBOD"	"nBOD"
"(mi)"	"(mi)"	"(mg/l)"	"(mg/l)"	"(mg/l)"
0,	0,	6.503,	19.958,	0
.1,	.1,	6.478,	19.831,	0
.2,	.2,	6.456,	19.704,	0
.3,	.3,	6.436,	19.578,	0
.4,	.4,	6.418,	19.453,	0
.425,	.425,	6.414,	19.422,	0

"Discharge/Tributary Input Data for Segment 2"

"Flow"	"cBOD5"	"TKN"	"DO"	"Temp"
"(mgd)"	"(mg/l)"	"(mg/l)"	"(mg/l)"	"deg C"

modout.txt
0, 0, 0, ,0, 0

"Incremental Flow Input Data for Segment 2"

"Flow", "cBOD5", "TKN", "DO", "Temp"
"(mgd)", "(mg/l)", "(mg/l)", "(mg/l)", "deg C"
.002, 2, 0, ,7.179, 23

"Hydraulic Information for Segment 2"

"Length", "Width", "Depth", "Velocity"
"(mi)", "(ft)", "(ft)", "(ft/sec)"
2.405, 1.5, .331, 1.214

"Initial Mix Values for Segment 2"

"Flow", "DO", "cBOD", "nBOD", "DOSat", "Temp"
"(mgd)", "(mg/l)", "(mg/l)", "(mg/l)", "(mg/l)", "deg C"
.6037, 6.417, 19.374, 0, 7.976, 26.97563

"Rate Constants for Segment 2. - (All units Per Day)"

"k1", "k1@T", "k2", "k2@T", "kn", "kn@T", "BD", "BD@T"
1.7, 2.342, 9.979, 11.775, .55, .941, .4955952,
.848

"Output for Segment 2"

"Segment starts at "

"Total", "Segm."

"Dist.", "Dist.", "DO", "cBOD", "nBOD"
"(mi)", "(mi)", "(mg/l)", "(mg/l)", "(mg/l)"

.425,	0,	6.417,	19.374,	0
.525,	.1,	6.282,	19.147,	0
.625,	.2,	6.157,	18.923,	0
.725,	.3,	6.042,	18.701,	0
.825,	.4,	5.936,	18.482,	0
.925,	.5,	5.839,	18.265,	0
1.025,	.6,	5.75,	18.051,	0
1.125,	.7,	5.669,	17.839,	0
1.225,	.8,	5.595,	17.63,	0
1.325,	.9,	5.527,	17.423,	0
1.425,	1,	5.466,	17.219,	0
1.525,	1.1,	5.41,	17.017,	0
1.625,	1.2,	5.36,	16.818,	0
1.725,	1.3,	5.315,	16.621,	0
1.825,	1.4,	5.275,	16.426,	0
1.925,	1.5,	5.239,	16.233,	0
2.025,	1.6,	5.208,	16.043,	0
2.125,	1.7,	5.181,	15.855,	0
2.225,	1.8,	5.157,	15.669,	0
2.325,	1.9,	5.137,	15.485,	0
2.425,	2,	5.12,	15.304,	0

modout.txt

2.525,	2.1,	5.106,	15.125,	0
2.625,	2.2,	5.095,	14.948,	0
2.725,	2.3,	5.087,	14.773,	0
2.83,	2.405,	5.081,	14.591,	0

"Discharge/Tributary Input Data for Segment 3"

"Flow",	"cBOD5",	"TKN",	"DO",	"Temp"
"(mgd)",	"(mg/l)",	"(mg/l)",	"(mg/l)",	"deg C"
0,	2,	0,	7.668,	23

"Incremental Flow Input Data for Segment 3"

"Flow",	"cBOD5",	"TKN",	"DO",	"Temp"
"(mgd)",	"(mg/l)",	"(mg/l)",	"(mg/l)",	"deg C"
.01,	2,	0,	7.194,	23

"Hydraulic Information for Segment 3"

"Length",	"Width",	"Depth",	"Velocity"
"(mi)",	"(ft)",	"(ft)",	"(ft/sec)"
1.17,	1.5,	.299,	1.376

"Initial Mix Values for Segment 3"

"Flow",	"DO",	"cBOD",	"nBOD",	"DOSat",	"Temp"
"(mgd)",	"(mg/l)",	"(mg/l)",	"(mg/l)",	"(mg/l)",	"deg C"
.6137,	5.115,	14.435,	0,	7.994,	26.91085

"Rate Constants for Segment 3. - (All units Per Day)"

"k1",	"k1@T",	"k2",	"k2@T",	"kn",	"kn@T",	"BD",	"BD@T"
1.7,	2.335,	12.821,	15.104,	.55,	.936,	0,	0

"Output for Segment 3"

"Segment starts at SEAY CREEK/U.T."

"Total", "Segm."

"Dist.",	"Dist.",	"DO",	"cBOD",	"nBOD"
"(mi)",	"(mi)",	"(mg/l)",	"(mg/l)",	"(mg/l)"
2.83,	0,	5.115,	14.435,	0
2.93,	.1,	5.158,	14.286,	0
3.03,	.2,	5.199,	14.139,	0
3.13,	.3,	5.239,	13.993,	0
3.23,	.4,	5.278,	13.849,	0
3.33,	.5,	5.316,	13.706,	0
3.43,	.6,	5.353,	13.565,	0
3.53,	.7,	5.389,	13.425,	0
3.63,	.8,	5.424,	13.286,	0
3.73,	.9,	5.458,	13.149,	0
3.83,	1,	5.491,	13.013,	0

modout.txt
 3.93, 1.1, 5.524, 12.879, 0
 4, 1.17, 5.546, 12.786, 0

"Discharge/Tributary Input Data for Segment 4"
 "Flow", "cBOD5", "TKN", "DO", "Temp"
 "(mgd)", "(mg/l)", "(mg/l)", "(mg/l)", "deg C"
 0, 0, 0, 0, 0

"Incremental Flow Input Data for Segment 4"
 "Flow", "cBOD5", "TKN", "DO", "Temp"
 "(mgd)", "(mg/l)", "(mg/l)", "(mg/l)", "deg C"
 .006, 2, 0, 7.207, 23

"Hydraulic Information for Segment 4"
 "Length", "Width", "Depth", "Velocity"
 "(mi)", "(ft)", "(ft)", "(ft/sec)"
 2.06, 1, .447, 1.365

"Initial Mix Values for Segment 4"
 "Flow", "DO", "cBOD", "nBOD", "DOSat", "Temp"
 "(mgd)", "(mg/l)", "(mg/l)", "(mg/l)", "(mg/l)", "deg C"
 .6197, 5.562, 12.711, 0, 8.008, 26.87298

"Rate Constants for Segment 4. - (All units Per Day)"
 "k1", "k1@T", "k2", "k2@T", "kn", "kn@T", "BD", "BD@T"
 1.7, 2.331, 13.107, 15.427, .55, .933, 0, 0

"Output for Segment 4"
 "Segment starts at "
 "Total", "Segm."
 "Dist.", "Dist.", "DO", "cBOD", "nBOD"
 "(mi)", "(mi)", "(mg/l)", "(mg/l)", "(mg/l)"
 4, 0, 5.562, 12.711, 0
 4.1, .1, 5.598, 12.579, 0
 4.2, .2, 5.633, 12.448, 0
 4.3, .3, 5.667, 12.319, 0
 4.4, .4, 5.7, 12.191, 0
 4.5, .5, 5.732, 12.064, 0
 4.6, .6, 5.763, 11.939, 0
 4.7, .7, 5.793, 11.815, 0
 4.8, .8, 5.822, 11.692, 0
 4.9, .9, 5.851, 11.571, 0
 5, 1, 5.879, 11.451, 0
 5.1, 1.1, 5.906, 11.332, 0
 5.2, 1.2, 5.933, 11.214, 0

modout.txt				
5.3,	1.3,	5.959,	11.098,	0
5.4,	1.4,	5.984,	10.983,	0
5.5,	1.5,	6.009,	10.869,	0
5.6,	1.6,	6.033,	10.756,	0
5.7,	1.7,	6.057,	10.644,	0
5.8,	1.8,	6.08,	10.533,	0
5.9,	1.9,	6.103,	10.424,	0
6,	2,	6.126,	10.316,	0
6.06,	2.06,	6.139,	10.252,	0

"Discharge/Tributary Input Data for Segment 5"

"Flow",	"cBOD5",	"TKN",	"DO",	"Temp"
"(mgd)",	"(mg/l)",	"(mg/l)",	"(mg/l)",	"deg C"
0,	0,	0,	,0,	0

"Incremental Flow Input Data for Segment 5"

"Flow",	"cBOD5",	"TKN",	"DO",	"Temp"
"(mgd)",	"(mg/l)",	"(mg/l)",	"(mg/l)",	"deg C"
.008,	2,	0,	,7.221,	23

"Hydraulic Information for Segment 5"

"Length",	"Width",	"Depth",	"Velocity"
"(mi)",	"(ft)",	"(ft)",	"(ft/sec)"
.64,	.999,	.432,	1.414

"Initial Mix Values for Segment 5"

"Flow",	"DO",	"cBOD",	"nBOD",	"DOSat",	"Temp"
"(mgd)",	"(mg/l)",	"(mg/l)",	"(mg/l)",	"(mg/l)",	"deg C"
.6277,	6.153,	10.185,	0,	8.023,	26.82362

"Rate Constants for Segment 5. - (All units Per Day)"

"k1",	"k1@T",	"k2",	"k2@T",	"kn",	"kn@T",	"BD",	"BD@T"
1.7,	2.326,	14.062,	16.533,	.55,	.93,	0,	0

"Output for Segment 5"

"Segment starts at "

"Total",	"Segm."	"Dist.",	"Dist.",	"DO",	"cBOD",	"nBOD"
"(mi)",	"(mi)",	"(mi)",	"(mi)",	"(mg/l)",	"(mg/l)",	"(mg/l)"
6.06,	0,	6.153,	10.185,	0		
6.16,	.1,	6.184,	10.083,	0		
6.26,	.2,	6.213,	9.982,	0		
6.36,	.3,	6.241,	9.882,	0		
6.46,	.4,	6.268,	9.783,	0		
6.56,	.5,	6.295,	9.685,	0		

modout.txt				
6.66,	.6,	6.321,	9.588,	0
6.7,	.64,	6.331,	9.55,	0

"END OF FILE"

ATTACHMENT 8

SPECIAL CONDITIONS RATIONALE

**VPDES PERMIT PROGRAM
LIST OF SPECIAL CONDITIONS RATIONALE**

B. ADDITIONAL TOTAL RESIDUAL CHLORINE (TRC) LIMITATIONS AND MONITORING REQUIREMENTS

Rationale: Required by Sewage Collection and Treatment Regulations, 9VAC25-790. Also, 40 CFR 122.41(e) requires the permittee, at all times, to properly operate and maintain all facilities and systems of treatment in order to comply with the permit. This ensures proper operation of chlorination equipment to maintain adequate disinfection.

C. SCHEDULE OF COMPLIANCE

Rationale: 9VAC25-31-250 allows for schedules of compliance, when appropriate, which will lead to compliance with the Clean Water Act, the State Water Control Law and regulations promulgated under them.

D. OTHER REQUIREMENTS OR SPECIAL CONDITIONS

1. 95% Design Capacity Notification

Rationale: Required by VPDES Permit Regulation, 9VAC25-31-200 B 4 for all POTW and PVOTW permits.

2. Indirect Dischargers

Rationale: Required by VPDES Permit Regulation, 9VAC25-31-200 B 1 and B 2 for POTWs and PVOTWs that receive waste from someone other than the owner of the treatment works.

3. CTC, CTO Requirements

Rationale: Required by Code of Virginia § 62.1-44.19; Sewage Collection and Treatment Regulations, 9 VAC 25-790.

4. Operations & Maintenance (O&M) Manual Requirements

Rationale: Required by Code of Virginia § 62.1-44.19; Sewage Collection and Treatment Regulations, 9 VAC 25-790; VPDES Permit Regulation, 9VAC25-31-190 E.

5. Sludge Reopener

Rationale: Required by VPDES Permit Regulation, 9VAC25-31-220 C for all permits issued to treatment works treating domestic sewage.

6. Licensed Wastewater Operator Requirement

Rationale: The VPDES Permit Regulation, 9VAC25-31-200 C and the Code of Virginia § 54.1-2300 et seq, Rules and Regulations for Waterworks and Wastewater Works Operators (18VAC160-20-10 et seq.), require licensure of operators.

7. Reliability Class Requirement

Rationale: Required by Sewage Collection and Treatment Regulations, 9VAC25-790 for all municipal facilities.

8. Compliance Reporting

Rationale: Authorized by the VPDES Permit Regulation, 9 VAC 25-31-190 J.4. and 220 I. This condition is necessary when pollutants are monitored by the permittee and a maximum level of quantification and/or a specific analytical method is required in order to assess compliance with a permit limit or to compare effluent quality with a numeric criterion. The condition also establishes protocols for calculation of reported values.

9. Materials Handling and Storage

Rationale: 9VAC25-31-50 A prohibits the discharge of any wastes into State waters unless authorized by permit. Code of Virginia §62.1-44.16 and §62.1-44.17 authorizes the Board to regulate the discharge of industrial waste or other waste.

10. Ground Water Monitoring Plan

Rationale: The State Water Control Law, Section 62.1-44.21, authorizes the Board to request information needed to determine the discharge's impact on State waters. Ground water monitoring for parameters of concern will indicate whether the system integrity is being maintained and will determine if activities at the site are resulting in violation of the State Water Control Board's Ground Water Standards.

11. Sludge Management Plan

Rationale: VPDES Permit Regulation, 9VAC25-31-100 P; 220 B 2; and 420 through 720, and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on sludge use and disposal practices and to meet specified standards for sludge use and disposal.

12. TMDL Reopener

Rationale: Section 303(d) of the Clean Water Act requires that total maximum daily loads (TMDLs) be developed for streams listed as impaired. This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL approved for the receiving stream. The re-opener recognizes that, according to section 402(o)(1) of the Clean Water Act, limits and/or conditions may be either more or less stringent than those contained in this permit. Specifically, they can be relaxed if they are the result of a TMDL, basin plan, or other wasteload allocation prepared under section 303 of the Act.

13. Closure Plan

Rationale: Required by Code of Virginia § 62.1-44.18:3 and the Board's Financial Assurance Regulation, 9VAC25-650-10 et seq.

14. Permit Application Requirement

Rationale: The VPDES Permit Regulation, 9 VAC 25-31-100 D. and 40 CFR 122.21 (d)(1) require a new application at least 180 days prior to expiration of the existing permit. In addition, the VPDES Permit Regulation, 9 VAC 25-31-100 E.1. and 40 CFR 122.21 (e)(1) note that a permit shall not be issued before receiving a complete application.

E. PRETREATMENT PROGRAM

Rationale: VPDES Permit Regulation, 9VAC25-31-730 through 900, and 40 CFR part 403 require certain existing and new sources of pollution to meet specified regulations.

F. OPERATION OF POLISHING LAGOON AND OVERLAND FLOW SYSTEM

Rationale: Best Engineering Judgment. The overland flow unit provides oxygen transfer (BOD5 and NH3-N removal) and settling/filtration (TSS); the permit conditions in this section are intended to optimize the conditions under which the unit is operated, and to prevent the unauthorized release of pollutants to state waters resulting from the operation and maintenance of this system.

Part II CONDITIONS APPLICABLE TO ALL VPDES PERMITS

Rationale: VPDES Permit Regulation, 9VAC25-31-190 requires all VPDES permits to contain or specifically cite the conditions listed.

ATTACHMENT 9

RECEIVING WATERS INFO./
STORET DATA

**Planning Statement for VPDES Permit Application Processing
DEQ-SCRO**

VPDES	OwnerName	Facility	County
VA0026239	Town of Kenbridge	Town of Kenbridge WWTP	Lunenburg

Outfall #: 001

River Basin: Chowan and Dismal Swamp **Receiving Stream:** Seay Creek

Subbasin: Nottoway

Watershed Code: K16

River Mile: 6.73

	MGD		MGD
1Q10	0	HF 1Q10	0
7Q10	0	HF7Q10	0
30Q5	0	HF30Q10	0
30Q10	0	HM	0

Modeling Notes

Modeled by April Grippo in 2001 but not utilized in last permit reissuance.

WQMP Name No Plan

Statement There are currently no regulatory planning documents for te Chowan River Basin

TMDL ID None


Impairment Cause

TMDL Due Date

Completed TMDL Information

None

TMDL Approval Dates



Amanda B. Gray, Water Planning Engineer or
Paula Nash, TMDL Coordinator

6.28.11

Date

MEMORANDUM
Department of Environmental Quality
Blue Ridge Regional Office-Lynchburg

7705 Timberlake Road

Lynchburg, Virginia 24502

Subject: Planning and TMDL Service Requests for VPDES Permits

To: Amanda Gray, Water Planning Engineer to
Paula Nash, TMDL Coordinator

From: Frank Bowman

Date: June 23, 2011

Copies: Planning File

The request for information is to be made at the following times:

Planning: Upon sending the reissuance reminder letter to the facility or, for an issuance or modification, at the time of application/modification request receipt.

TMDL: Same as above. For VPDES general permits, at the time of registration statement receipt.

FACILITY NAME: Kenbridge STP

VPDES PERMIT NO. VA0026239

EXPIRATION DATE: June 10, 2012

FACILITY PHYSICAL LOCATION: 177 Maple Street, Kenbridge

INDIVIDUAL PERMIT ACTION: Issuance **Reissuance** Modification

GENERAL PERMIT ACTION: New Coverage Previously Covered

PERMIT TYPE: Major **Minor** General **Municipal** Industrial Storm Water TMP TRE

If a VPDES General Permit, which type: _____

PERMIT WRITERS: ATTACH THE FOLLOWING

- Topo map with facility location and outfall locations clearly marked (include any proposed outfalls)
- Site diagram for facilities with multiple outfalls
- Description or map showing effluent flow path if not apparent on topo map
- The outfall numbers, latitude, longitude, receiving stream and topo name in the table below (use an additional sheet if there are more outfalls)

Outfall No.	Latitude	Longitude	Receiving Stream	Topo Name
001	36° 57' 43"	78° 6' 48"	Seay Creek	Kenbridge East

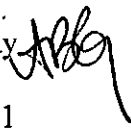
DATE INFORMATION NEEDED: December 13, 2011

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY
Blue Ridge Regional Office - Lynchburg - Water Planning
7705 Timberlake Road Lynchburg, VA 24502 434/582-5120

SUBJECT: Flow Frequency Determination
Kenbridge WWTP #VA0026239

TO: Frank Bowman

FROM: Amanda Gray 

DATE: June 28, 2011

COPIES: File

The Kenbridge WWTP discharges to the headwaters of Seay Creek in Lunenburg County, Virginia. Flow frequencies are required at this site for use by the permit writer in developing the VPDES permit.

The flow frequencies for the receiving stream were determined by inspection of the USGS Kenbridge East Quadrangle topographic map. The map depicts the stream as intermittent. The flow frequencies for intermittent streams are 0.0 cfs for the 1Q10, 7Q10, 30Q5, 30Q10, HF1Q10, HF7Q10, HF30Q10 and harmonic mean.

If you have any questions regarding this analysis please feel free to contact me.

Wqm Water Shed Code	K14
Station ID	5ABHC003.73
Station Description	RT. 653 BRIDGE

Collection Date Time	Temp Celcius	Field Ph	HARDNESS, TOTAL (mg/l as CaCO3)
09/04/1990	20.6	7.13	
09/04/1990 12:00			28
12/04/1990	11.5	7.09	26
03/27/1991	16.25	6.93	42
06/18/1991	22.83	6.87	50
09/09/1991	19.53	6.61	38
12/04/1991	10.05	6.85	24
03/17/1992	8.71	6.12	24
06/16/1992	19.8	6.2	34
07/29/1992 10:23			
09/09/1992	21.23	6.5	34
12/03/1992	4.38	7.06	31
03/04/1993	7.89	5.82	30
06/14/1993	19.73	6.61	26
09/16/1993	21	6.79	46
12/13/1993 14:32			
03/22/1994	12.3	6.98	27
06/15/1994	22.44	6.75	23
08/29/1994	20.96	7.02	28
11/16/1994	10.14	6.95	24
02/22/1995	4.28	6.82	25
05/17/1995	17.7	6.83	27
08/23/1995	20.96	6.79	31
11/29/1995	8.96	6.81	29
02/15/1996	5.26	6.42	24
05/16/1996	14.16	6.67	23
08/15/1996	20.4	6.64	23
11/13/1996	4.39	6.52	24
02/06/1997	5.06	6.87	23.7
05/06/1997	13.73	6.68	23.3
08/12/1997	21.09	6.96	26.4
10/16/1997	13.44	7.04	28.4
12/17/1997	1.1	7.11	19.5
02/23/1998	7.82	6.68	20.6
04/21/1998	14.24	7.17	17.3
06/24/1998	21.61	6.96	22
08/25/1998	23.9	7.09	23.8
10/29/1998	10.84	6.68	24
12/17/1998	3.93	6.7	25.6
02/17/1999	6.7	6.81	48
04/22/1999	18.06	6.85	34
06/16/1999	20.1	6.8	20.5
08/16/1999	24.79	6.72	20
10/21/1999	13.71	6.54	20.5
12/27/1999	3.03	6.46	25.3
02/14/2000	8.41	6.84	22.9
04/17/2000	23.39	7.1	17
06/01/2000	18.15	6.86	17
08/15/2000	24.4	7.09	24.1
09/28/2000	15.55	6.87	17
12/11/2000	4.48	6.74	16

02/26/2001	11.31	7.13	22.5
07/23/2001	21.29	6.81	11.3
09/10/2001	19.83	6.88	10.4
11/26/2001	12.19	7.04	18.1
01/29/2002	7.41	7.51	25.8
03/21/2002	9.83	6.83	10 U
05/22/2002	11.52	6.94	26.1
07/24/2002	23.71	6.91	25.9
09/17/2002	21.01	7.13	23.3
11/14/2002	9.88	6.59	23.3
01/08/2003	5.18	6.84	21.4
04/03/2003	13.8	6.97	21.4
06/30/2003	21.3	6.9	19.1
07/31/2003	20.64	7.15	
08/20/2003	22.5	7.05	
09/11/2003	19.77	7.22	
10/07/2003	14.86	7.2	
10/14/2003	16.92	7.43	
11/13/2003	13.54	7.33	
12/08/2003	4.43	7.26	
01/24/2007	4.5	7	
03/21/2007	10.3	6.8	
05/22/2007	18.7	7.1	
07/10/2007	25.4	7	
09/06/2007	22.7	7.1	
11/29/2007	7.3	7.5	
01/15/2008	3.4	7.2	
03/03/2008	9.7	8	
05/07/2008	18.3	7.4	
07/10/2008	22.8	7.2	
09/15/2008	23.9	6.9	
11/20/2008	7.3	7.4	
90th	22.803	7.224	25.18852 (avg)
10th	-	6.585	
	17.076		

ATTACHMENT 10

TABLE A AND TABLE B - CHANGE SHEETS

TABLE A

VPDES PERMIT PROGRAM
Permit Processing Change Sheet

1. Effluent Limits and Monitoring Schedule: (List any changes FROM PREVIOUS PERMIT and give a brief rationale for the changes).

OUTFALL NUMBER	PARAMETER	MONITORING CHANGED FROM / TO	EFFLUENT LIMITS CHANGED FROM / TO	RATIONALE	DATE & INITIAL
001	Ammonia	None to 1/2 weeks (January – April)	None to 6.6 mg/l (weekly and monthly, January – April)	TKN no longer protective for this time period	4/3/12, GFB
001	TRC	n/a	9.4 µg/l (monthly avg.) and 11.3 µg/l (weekly avg.) to 2.38 µg/l and 2.93 µg/l, respectively	Re-evaluation of chlorine limits indicated that permit limits needed to be reduced.	4/3/12, GFB

OTHER CHANGES FROM:	CHANGED TO:	DATE & INITIAL
	Added Compliance Schedules condition	4/3/12, GFB

TABLE B

VPDES PERMIT PROGRAM
Permit Processing Change Sheet

1. Effluent Limits and Monitoring Schedule: (List any changes MADE DURING PERMIT PROCESS and give a brief rationale for the changes).

NOTE: INCLUDE ONLY CHANGES MADE DUE TO OUTSIDE COMMENTS (OWNER, EPA, PUBLIC, ETC.). LEAVE THIS TABLE OUT IF THERE ARE NO SUCH CHANGES.

OUTFALL NUMBER	PARAMETER CHANGED	MONITORING LIMITS CHANGED FROM / TO	EFFLUENT LIMITS CHANGED FROM / TO	RATIONALE	DATE & INITIAL

OTHER CHANGES FROM:	CHANGED TO:	DATE & INITIAL

ATTACHMENT 11

EPA/VIRGINIA DRAFT PERMIT SUBMISSION CHECKLIST

Part I. Virginia Draft Permit Submission Checklist

In accordance with the MOA established between the Commonwealth of Virginia and the United States Environmental Protection Agency, Region III, the Commonwealth submits the following draft National Pollutant Discharge Elimination System (NPDES) permit for Agency review and concurrence.

Facility Name:	Kenbridge STP
NPDES Permit Number:	VA0026239
Permit Writer Name:	Frank Bowman
Date:	3/15/12

Major ☐ Minor ☒ Industrial ☐ Municipal ☒

I.A. Draft Permit Package Submittal Includes:	Yes	No	N/A
1. Permit Application?	X		
2. Complete Draft Permit (for renewal or first time permit – entire permit, including boilerplate information)?	X		
3. Copy of Public Notice?	X		
4. Complete Fact Sheet?	X		
5. A Priority Pollutant Screening to determine parameters of concern?			X
6. A Reasonable Potential analysis showing calculated WQBELs?	X		
7. Dissolved Oxygen calculations?		X	
8. Whole Effluent Toxicity Test summary and analysis?			X
9. Permit Rating Sheet for new or modified industrial facilities?			X

I.B. Permit/Facility Characteristics	Yes	No	N/A
1. Is this a new, or currently unpermitted facility?		X	
2. Are all permissible outfalls (including combined sewer overflow points, non-process water and storm water) from the facility properly identified and authorized in the permit?	X		
3. Does the fact sheet or permit contain a description of the wastewater treatment process?	X		
4. Does the review of PCS/DMR data for at least the last 3 years indicate significant non-compliance with the existing permit?		X	

I.B. Permit/Facility Characteristics – cont.	Yes	No	N/A
5. Has there been any change in streamflow characteristics since the last permit was developed?		X	
6. Does the permit allow the discharge of new or increased loadings of any pollutants?		X	
7. Does the fact sheet or permit provide a description of the receiving water body(s) to which the facility discharges, including information on low/critical flow conditions and designated/existing uses?	X		
8. Does the facility discharge to a 303(d) listed water?		X	
8.a. Has a TMDL been developed and approved by EPA for the impaired water?			X
8.b. Does the record indicate that the TMDL development is on the State priority list and will most likely be developed within the life of the permit?			X
8.c. Does the facility discharge a pollutant of concern identified in the TMDL or 303(d) listed water?			X
9. Have any limits been removed, or are any limits less stringent, than those in the current permit?		X	
10. Does the permit authorize discharges of storm water?			X
11. Has the facility substantially enlarged or altered its operation or substantially increased its flow or production?		X	
12. Are there any production-based, technology-based effluent limits in the permit?		X	
13. Do any water quality-based effluent limit calculations differ from the State's standard policies or procedures?		X	
14. Are any WQBELs based on an interpretation of narrative criteria?		X	
15. Does the permit incorporate any variances or other exceptions to the State's standards or regulations?		X	
16. Does the permit contain a compliance schedule for any limit or condition?	X		
17. Does the permit include appropriate Pretreatment Program requirements?	X		
18. Is there a potential impact to endangered/threatened species or their habitat by the facility's discharge(s)?		X	
19. Have impacts from the discharge(s) at downstream potable water supplies been evaluated?	X		
20. Is there any indication that there is significant public interest in the permit action proposed for this facility?		X	
21. Has previous permit, application, and fact sheet been examined?	X		

Part II NPDES Draft Permit Checklist
Region III NPDES Permit Quality Checklist – for POTWs
 (To be completed and included in the record only for POTWs)

II.A. Permit Cover Page/Administration	Yes	No	N/A
1. Does the fact sheet or permit describe the physical location of the facility, including latitude and longitude (not necessarily on permit cover page)?	X		
2. Does the permit contain specific authorization-to-discharge information (from where to where, by whom)?	X		

II.B. Effluent Limits – General Elements	Yes	No	N/A
1. Does the fact sheet describe the basis of final limits in the permit (e.g., that a Comparison of technology and water quality-based limits was performed, and the most stringent limit selected)?	X		
2. Does the record discuss whether "antibacksliding" provisions were met for any limits that are less stringent than those in the previous NPDES permit?			X

II.C. Technology-Based Effluent Limits (POTWs)	Yes	No	N/A
1. Does the permit contain numeric limits for <u>ALL</u> of the following: BOD (or alternative, e.g., CBOD, COD, TOC), TSS and pH?	X		
2. Does the permit require at least 85% removal for BOD (or BOD alternative) and TSS (or 65% for equivalent to secondary) consistent with 40 CFR Part 133?	X		
2.a. If no, does the record indicate that application of WQBELs, or some other means, results in more stringent requirements than 85% removal or that an exception consistent with 40 CFR 133.103 has been approved?			X
3. Are technology-based permit limits expressed in appropriate units of measure (e.g., concentration, mass, SU)?	X		
4. Are permit limits for BOD and TSS expressed in terms of both long-term (e.g., average monthly) and short term (e.g., average weekly) limits?	X		
5. Are any concentration limitations in the permit less stringent than the Secondary treatment requirements (30 mg/l BOD5 and TSS for a 30-day average and 45 mg/l BOD5 and TSS for a 7-day average)?		X	
5.a. If yes, does the record provide a justification (e.g., waste stabilization pond, trickling filter, etc.) for the alternate limitations?			X

II.D. Water Quality-Based Effluent Limits	Yes	No	N/A
1. Does the permit include appropriate limitations consistent with 40 CFR 122.44(d) covering state narrative and numeric criteria for water quality?	X		
2. Does the fact sheet indicate that any WQBELs were derived from a completed and EPA approved TMDL?		X	

II.D. Water Quality-Based Effluent Limits – cont.	Yes	No	N/A
3. Does the fact sheet provide effluent characteristics for each outfall?	X		
4. Does the fact sheet document that a “reasonable potential” evaluation was performed?	X		
4.a. If yes, does the fact sheet indicate that the “reasonable potential” evaluation was performed in accordance with the State’s approved procedures?	X		
4.b. Does the fact sheet describe the basis for allowing or disallowing in-stream dilution or a mixing zone?			X
4.c. Does the fact sheet present WLA calculation procedures for all pollutants that were found to have “reasonable potential”?	X		
4.d. Does the fact sheet indicate that the “reasonable potential” and WLA calculations accounted for contributions from upstream sources (i.e., do calculations include ambient/background concentrations)?			X
4.e. Does the permit contain numeric effluent limits for all pollutants for which “reasonable potential” was determined?	X		
5. Are all final WQBELs in the permit consistent with the justification and/or documentation provided in the fact sheet?	X		
6. For all final WQBELs, are BOTH long-term AND short-term effluent limits established?		X	
7. Are WQBELs expressed in the permit using appropriate units of measure (e.g., mass, concentration)?	X		
8. Does the record indicate that an “antidegradation” review was performed in accordance with the State’s approved antidegradation policy?	X		

II.E. Monitoring and Reporting Requirements	Yes	No	N/A
1. Does the permit require at least annual monitoring for all limited parameters and other monitoring as required by State and Federal regulations?	X		
1.a. If no, does the fact sheet indicate that the facility applied for and was granted a monitoring waiver, AND, does the permit specifically incorporate his waiver?			X
2. Does the permit identify the physical location where monitoring is to be performed for each outfall?	X		
3. Does the permit require at least annual influent monitoring for BOD (or BOD alternative) and TSS to assess compliance with applicable percent removal requirements?		X	
4. Does the permit require testing for Whole Effluent Toxicity?			X

II.F. Special Conditions	Yes	No	N/A
1. Does the permit include appropriate biosolids use/disposal requirements?	X		

II.F. Special Conditions – cont.	Yes	No	N/A
2. Does the permit include appropriate storm water program requirements?			X
3. If the permit contains compliance schedule(s), are they consistent with statutory and regulatory deadlines and requirements?	X		
4. Are other special conditions (e.g., ambient sampling, mixing studies, TIE/TRE, BMPs, special studies) consistent with CWA and NPDES regulations?	X		
5. Does the permit authorize discharge of sanitary sewage from points other than the POTW outfall(s) or CSO outfalls [i.e., Sanitary Sewer Overflows (SSOs) or treatment plant bypasses]?		X	
5.a. Does the permit require implementation of the “Nine Minimum Controls”?			X
5.b. Does the permit require development and implementation of a “Long Term Control Plan”?			X
5.c. Does the permit require monitoring and reporting for CSO events?			X
6. Does the permit include appropriate Pretreatment Program requirements?	X		

II.G. Standard Conditions	Yes	No	N/A
1. Does the permit contain all 40 CFR 122.41 standard conditions or the State equivalent (or more stringent) conditions?	X		
List of Standard Conditions – 40 CFR 122.41 <ul style="list-style-type: none"> • Duty to comply • Duty to reapply • Need to halt or reduce activity not a defense • Duty to mitigate • Proper O & M • Permit Actions • Property rights • Duty to provide information • Inspections and entry • Monitoring and reporting • Signatory requirement • Reporting requirements <ul style="list-style-type: none"> Planned change Anticipated non-compliance Transfers Monitoring Reports Compliance schedules 24-hour reporting Other non-compliance • Bypass • Upset 			
2. Does the permit contain the additional standard condition (or the State equivalent or more stringent conditions) for POTWs regarding notification of new introduction of pollutants and new industrial users [40 CFR 122.42(b)]?	X		

Part III. Signature Page

Based on a review of the data and other information submitted by the permit applicant, and the draft permit and other administrative records generated by the Department/Division and/or made available to the Department/Division, the information provided on this checklist is accurate and complete, to the best of my knowledge.

Name	Frank Bowman
Title	Environmental Specialist
Signature	<i>Frank Bowman</i>
Date	3/15/12

ATTACHMENT 12

CHRONOLOGY SHEET

CHRONOLOGY OF EVENTS

APPLICATION RECEIVED	APPLICATION RETURNED	ADDITIONAL INFO REQUESTED	APPLICATION/ADD INFO DUE BACK IN RO	APPLICATION/ADD. INFO RECEIVED
11/21/11	12/5/11			12/8/11
APPLICATION TO VDH: 11/28/11		VDH COMMENTS RECEIVED: 12/1/11		
APPLICATION ADMIN. COMPLETE: 12/8/11		APPLICATION TECH. COMPLETE: 12/8/11		

Date	DESCRIPTIVE STATEMENT [CHRONOLOGY OF EVENTS] (Meetings, telephone calls, letters, memos, hearings, etc. affecting permit from application to issuance)

[illegible]